

The name of Ade is now part of computer jargon, having been adopted for a real time language. It has been suggested that the name might have begun as a joke between Lord Byron and his wife: it was

the second name of their only daughter Augusta Ade Byron (1815-1852). DONALD DAVIES charts the stormy life of the world's first programmer.

The stormy life of the world's first programmer

ADA's father was the great Lord Byron, whose marriage to Lady Byron broke up quickly so that when Ada was born on December 10, 1815, he saw little of the baby and had no more contact with Lady Byron and her daughter.

and born in September, 1837, and another boy, called Ralph, born in July 1839. Ralph was the name of Lady Byron's father.

In June, 1837, Victoria came to the throne and, in her 1838 Coronation Honours, Lord King became the Earl of Lovelace and his older son (aged 2) became Viscount Ockham, thus avoiding some possible confusion about his Christian name Byron. It is probable that this honour for Lord King was due to Lady Byron's cousin, Lord Melbourne. Two years later, Lord Melbourne made him Lord Lieutenant of Surrey and provided him with a life ticket to drive through Constitution Hill, a considerable privilege.

Charles Babbage moved on from the Difference Engine to the much grander concept of the Analytical Engine, but he never seems to have written any single coherent account of this machine or of its programming. The best account we have comes



LADY LOVELACE... one of the few who really understood Charles Babbage's Analytical Engine.

by DONALD DAVIES

the intensive education which Lady Byron planned. Lady Byron had a great interest in educational methods. At the age of five Ada was being taught arithmetic, geometry, spelling, reading, music, geography and French. She was already said to be skilful in arithmetic. Her regime was strict, but Ada seems generally to have liked her lessons.

In February, 1824, when Ada was eight, Lord Byron died. He was trying with his last breath to say something relating to Ada. His daughter, it was written, shed large tears.

From the age of 14, Ada seems to have been stricken with a disease which made it difficult for her to walk. For a while she used crutches and at the time of her presentation at Court in May 1833, aged 17, she was still finding it difficult to stand for long.

Those at the presentation to King William IV and Queen Adelaide included Talleyrand, the Duke of Wellington and Lord Melbourne, who was Home Secretary, soon to be Prime Minister, and who was Lady Byron's cousin.

A few weeks later, she went to a party which pleased her more because of the "scientific" people there. This was her first meeting with Charles Babbage, who at that time was beginning to have problems with the funding by the Treasury for building his Difference Engine. Ada's friendship with Babbage continued throughout her life.

In the following year, Ada was attending lectures on the Difference Engine given by Dr Lardner.

In July 1835 she was married to Lord King. Probably, Ada's meeting with her future husband was brought about by Mrs Somerville, a lady who was a celebrity in the scientific world and had a portrait made of her to stand in the Great Hall of the Royal Society. Despite this, Mrs Somerville could not become a fellow or even enter the place to see the sculpture.

The King family had three children quite soon: a boy in May 1836 called Byron, a girl called Anna Isabella or Annabella after her grandmother Lady Byron

by a roundabout route, and its completeness is largely due to Ada herself.

Charles Babbage had given some lectures in Turin and the young Italian military engineer, L. F. Menabrea, who heard them, wrote an account of the machine in French which was published in October, 1842. Lady Lovelace told Babbage that she had translated this paper into English and he asked her at once why she had not written an original paper. This had not occurred to her, but Babbage persuaded her to add many detailed notes to Menabrea's paper. Including some examples of programs which she discussed with Babbage but which, with one exception, were her own. She had also found that Babbage's suggestion for calculating Bernoulli numbers had "grave mistake", the first reported example of a program bug.

When Ada had finished with these notes, they were three times as long as the original memoir and Babbage was immensely delighted with the result, which he regarded as the first full demonstration of the power of the Analytical Engine.

Ada's notes on Menabrea's paper are possibly the only direct evidence of her mathematical ability. They are clear, well-written and intelligent though, by modern standards, they seem over-long. Her correspondence with Babbage shows her charm and high regard for him. He certainly valued her ideas and found her one of the few people who really understood what the Analytical Engine was about. But his attempts to improve the style of her notes drew a strong rebuke from Ada.

Both worked hard to polish and refine the notes, but I think careful not to alter them again without good reasons. He gave Ada all the credit for them except for the basic method used to calculate Bernoulli numbers.

In the notes she introduces an index notation to remove some ambiguities. She discusses the many different sequences in which a set of operations could be carried out, and suggests that

the right choice will shorten the total time of calculation. Tactfully, she corrects Menabrea's formulae and then lays out the operation of his programs in tables to make the process entirely clear.

Her final example, the Bernoulli numbers requires, as she says, "cycles of cycles" and the paper ends with a large table tracing the history of the 24 variables needed to compute up to 10. She wrote the table in pencil and Lord Lovelace inked it in. Then they found a major error of method and had to do it again.

The experience of working through these examples was important. Menabrea felt that the intellectual work would end with the mathematical formulae. What we now call programming he supposed was a job for "workmen".

Ada was clearly not doing the job of "workmen". She seems to have understood the importance

of a good notation and remarked that mathematical notation was insufficient. Her notes have a surprisingly "modern" feeling when compared to anything Menabrea wrote, and perhaps Babbage also. But nothing else of her scientific work or ideas remains, to my knowledge.

This close collaboration between Babbage and the young married lady must have been unusual. In the manner of the day, they corresponded frequently, sometimes daily or even more than once a day. Babbage visited the Lovelaces by taking the train to Weybridge, a newly opened station.

Ada was acquainted also with Faraday and with Charles Wheatstone who was then developing the electric telegraph with William Cooke.

Ada was noted for her outspokenness. She wrote that "Faraday expresses himself in absolute amazement at what he (I think most happily and

beautifully) designates the elasticity of my intellect". She says that he "feels himself a mere tortoise in comparison". She was not inclined to exaggerate and so Faraday probably did pay her this handsome compliment.

Towards the end of 1850, the Lovelaces visited friends and relatives in the North of England. Among other places they visited Newstead Abbey which earlier belonged to the Byron family but had been sold to a Col. Wildman. Nearby was Hucknall, where Ada's father was buried.

This visit was to have a profound effect on Ada. At first she was morose and Col Wildman could get almost no words from her. She wrote to her mother that the visit to Newstead Abbey had made her strangely depressed. What seems to have happened was that Col. Wildman, who knew Lord Byron in his youth had, in his conversation and by the way he

maintained the house as a tribute to the Byron family, begun to challenge Ada's lifelong indoctrination concerning the sins of her father.

The lost two years of Ada's life form a story of illness and disgrace. The illness was cancer, which showed its first signs in late 1850. The disgrace came from her addiction to gambling on horses.

There is no certain connection between this gambling and her friendship with Babbage, though Babbage tried to help her later when she was in trouble. Even the idea that Ada had a "system" using mathematics to win on the horses is not really substantiated by the evidence.

This may have been the beginning of her downfall but at the end she was simply harsh in debt and trying to retrieve a situation with more betting. She was mixed up with unsavoury characters, offering tips and trying to extract money that she owed them. Among these appears John Crosbie, the son of a former scientific friend and of whom there was some hint of other scandals because he had concealed from the Lovelace family that he was a married man.

Ada's ill-fortune came to a head on Derby Day, 1851. The horse that won and sealed her fate was called Teddington. She owed £3,200, a very big sum.

Settling the debts was difficult because untrustworthy people claimed to have laid out large sums on Ada Lovelace's account. It was impossible to keep the matter quiet so, as well as writing to Lady Byron, Lord Lovelace travelled to Leamington to see her. He told her about Ada's increasing signs of illness but evidently the news of Ada's gambling affected Lady Byron more.

Until this time, Lord Lovelace had been on good terms with Lady Byron, though somewhat dominated by her. Now, Lady Byron blamed him for everything that had happened and seemed to transfer to him all the feelings she had built up for her late husband with Ada in the role of the wronged wife. The strength of these feelings was such that she almost ignored the news of Ada's illness and it was not until Ada was very ill indeed that her mother came to see her again.

So the end of Ada's life was tragic. She had pawned the family jewels for £800 to try and pay some remaining debts and Lady Byron sent her lawyer to redeem the jewels and return them. On her death-bed, she passed the jewels to John Crosbie who pawned them again and Lady Byron redeemed them again but kept them herself for safety.

She died in December, 1852, aged 36, the same age as Byron at his death. In accordance with her wishes she was interred in the Byron family vault in the village church of Hucknall, Torkard. Evidently Lord Lovelace had contrived to put her coffin close to that of Byron as she wanted, because this is how they were found when the vault was opened in 1938.

BIBLIOGRAPHY
Lord Byron's Family, Malcolm Boyd, John Murray, London 1976.
Ada, Countess of Lovelace, Doris Layton Scott, John Murray, London 1977.
Charles Babbage and the Analytical Engine, G. Stansfeld, London 1964.
Charles Babbage and his Analytical Engine, ed. Philip and Emily Matthews, Dover, New York 1961.

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INTERNATIONAL BRIEFING

Supercomputer for China

CHINA is expected to have soon a supercomputer with a speed of 20 million instructions per second under development. It will use high speed emitter-coupled logic circuits which have been developed at the Shanghai Number Seven radio plant especially for the computer. The new machine will have 10 times the performance of China's largest computer currently known, the Model 013. Despite this, China is aware that shortages of raw materials and production equipment are hampering its efforts to develop LSI semiconductor technology.

Secrets trial

A 29-YEAR-OLD man was tried in Boston on Monday accused of attempting to sell confidential information about IBM to Control Data last year. David Grigalunas is said to have stolen the IBM information when he was an employee of Charles River Associates, a Boston consultancy. He was arrested when CDC informed IBM about the contact and the police were brought in. No verdict has been returned when Computer Weekly went to Press.

S African order

SOUTH AFRICA'S Iron and Steel Corporation, Iscor, has ordered two dual Burroughs B7821 mainframes to replace four CDC 3000 series machines. They are to be installed in Vanderhulpark and Newcastle. Control Data has retained the Iscor business at its Pretoria head office and works with unspecified equipment. ICL, IBM, Siemens and Unisys all bid.

Director named

MAGNUSON SYSTEMS, which sells the M80 family of IBM compatible processors, has created a new post of manufacturing director. He is Douglas Larson, who held a similar position within National Semiconductor's Advanced System operation. Larson will head Magnuson's expanded production activities at a new 75,000 square foot plant at San Jose, California.

ITT launch

A NEW data entry system compatible with IBM's 3741 key to floppy disc system has been launched by ITT data systems in France. Called the 3741, it comes in four models, two of which are direct replacements for the 3741 while the other three are programmable in Basic.

Woolworth order

IBM has won a \$25 million order for 8,000 of its 3880 point-of-sale terminals from Woolworths in the US. One deciding factor in awarding the contract is thought to have been a "volume procurement discount" of between 4% and 8% offered to Woolworths. The only other deal of this kind offered by IBM was with the Series 1 system.

Computer Automation's new chief

COMPUTER AUTOMATION has a new chairman. He is George Pratt, a financial controller who has been a director for about eight years.

Pratt replaces Robert Rawlins who retires after 10 years as chairman. David Mathews continues as president and chief executive officer of the company.

Meanwhile, Computer Automation, which is recovering from some serious financial problems, has signed a new credit agreement with its bankers that extends to mid-1981. The unsecured credit line stands at \$15 million at the end of 1979 and will decline in stages to \$12 million by May 31, 1981.

Computer Automation's bankers are Citibank and Security Pacific National Bank.

Two-year field trial planned for Canada's Telidon viewdata system

CANADA has added another field trial to plans for the development of its Telidon viewdata system. The latest trial, called Project Mercury, is due to start in the coming autumn in Saint John, New Brunswick, on the east coast, and run for up to two years.

It is the smallest trial announced so far and involves 20 terminals to be installed around 75 homes and businesses, linked by dedicated lines to a DEC PDP-11 at the New Brunswick Telephone Company. The trial will also include meter reading, fire and burglar alarms, medical

CDC sets up centres for small businesses

WHILE politicians and sociologists talk tirelessly about the need to help small businesses and to revitalize inner-city areas, Control Data is actually doing something in the US to alleviate the problem of both.

Starting in its home city of St Paul, the company is establishing a string of business centres across the country which offer to small business tenants a share in high technology

services which they would not otherwise be able to afford.

Included in the rent are a building receptionist, use of conference rooms and access to a technical library with over 1,800 volumes and the major periodicals. In addition terminal access to CDC's Cybernet, programming services, use of a Xerox copying copier and telephone answering services are all charged on a usage basis. Business advisory services are also offered.

Control Data is not establishing the centres out of altruism: it expects them to pay and has set a target of profitability after three years. The St Paul centre was opened last May and others are being established in the run-down city centres of St Paul's twin city, Minneapolis, in Toledo and in Philadelphia. Control Data hopes to have 15 in operation within five years.

Logica in \$8 million Nato study contract

LOGICA is part of an international consortium which has just been awarded a multi-million dollar study contract to define the overall architecture of a massive command and control network called Allied Command Europe — Command and Control Information System, ACE-CICIS. The consortium is headed by the Munich based consultancy Elektronik System, and the other four members include IBM Germany.

Nato's decision to award the

study contract was made more than 18 months ago (CW, May 18, 1978). It will be carried out in Belgium over a two-year period and is worth nearly \$8 million to the winning consortium. Logica will get 18% of the total.

Consortia that bid unsuccessfully included one led by the defence systems side of Plessey and which included Secom. The other consortium in the final short-list of two was headed by TRW of the US and included ICL's software company Data-skill. Both consortia were equally good technically but the ESG group got the job because its bid was cheaper.

The proposed command and control network will interface with the existing and future networks operated by the armed forces of the individual Nato member countries including the UK's Open.

The study will include establishing the requirements of potential users of the network and is the first stage of a project which could take up to 15 years to complete. Substantial contracts for implementation work will be awarded in the future and like the study contract will be open to tender.

Contracts still have to be placed for the message switching systems, Scans and Cmps, that form part of Nato's communications plans along with the command and control network.

The other three members of the ESG consortium are the US firm BDM Corp of McLean Virginia, a third German firm, GEI of Aachen, and Sobemap of

Belgium, which is part of the Metri computer services company. Sobemap worked with Logica on the Meteosat project at Darmstadt. BDM is active in the defence field in the US.

Another US owned firm, PRC International, is currently working on the other big current computer-related Nato project, the Shape Transition Programme. This involves a Honey-

Arabic Braille systems for Saudi Arabia

A COMMISSION to design a computer system for producing Arabic Braille to benefit the blind in Saudi Arabia has been granted to Warwick University's Research Unit for the Blind.

Who to use at a major Arabian publishing house, the system will allow keyboarders with no knowledge of Braille to input text on VDUs for automatic conversion to embossed metal plates, from which Braille books are made.

Contracted Arabic Braille contains a large number of complex abbreviations to make reading faster, and hitherto the conversion from ordinary Arabic has required a skilled person.

The hardware for the system has not yet been chosen, but several manufacturers make suitable Arabic terminals.

Warwick's unit for the blind is best known for the service it

provides to blind customers of Lloyds Bank, embossing statements for them automatically from magnetic tapes provided by the bank. About 7,000 such statements are produced a year, giving blind people increased privacy as previously they had to ask friends or neighbours to read their statements to them.

This a plan which emphasised support for the small systems and peripherals sector would enable the government to continue to aid CIL-IBB after the EEC directive comes into force.

CIL-IBB has been active in pursuing small systems business, using the Honeywell Level 6 mini-computer, called Mini 6 in France, as the spearhead, but expanding its interests in terminals, entering the banking systems market, and requiring a controlling interest in micro-computer specialist R21. In addition it is actively studying the office automation market.

Thus a plan which emphasised support for the small systems and peripherals sector would enable the government to continue to aid CIL-IBB after the EEC directive comes into force.

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One of the largest private data processing operations in the world is run as co-operative venture by New Zealand's banking industry. It is the only system that serves a country's entire banking

New Zealand leads in banking systems

NO ONE can move in New Zealand data processing circles for more than a few days without hearing what a world-leading banking system the country has. The Databank Bureau is constantly being cited as evidence that this little country is not a backwater of the computer world. It can even, occasionally, take a lead in the application of

computer technology.

The smallness of the country is, indeed, the chief reason why it has managed to evolve a system fairly described as unique — the world's only countrywide services operation catering for the DP needs of all its banks.

There are banking consortium arrangements for computer services elsewhere in the world, of

course, notably Scandinavia, Japan and the US, but these involve only some of the country's banks.

New Zealand has only five trading banks, three shared with Australia. As these cater for a population of only three million, it clearly makes a good deal of sense for banks to combine service operations, rather than each running a separate computer system catering for a small number of account holders.

The Bank of New Zealand began looking at computer use in 1966, to supplement and relieve the pressure on the courier service, kept busy running documents to and from bank branches all over the country.

At about the same time, another of the five, the National Bank (part of the British Lloyds group) was also examining computer solutions. The two compared notes and decided on a joint approach. In the following year the three others — the Commercial Bank of Australia, the Australia and New Zealand Bank, and the Bank of New South Wales — accepted an invitation to join the consortium.

Had any of the banks earlier installed equipment on its own, said Databank spokesman Malcolm Shaw, the venture incorporated in 1967 as Databank would probably never have got off the ground. As well as its smallness, New Zealand can probably thank the scarcity of computer expertise in the country at the time. If more experts had been available, the banks might have gone their separate ways.

In the event, the next three years saw a gradual take-on of the Databank venture by all five banks: the Bank of New Zealand first, by mid-1967, followed later that year by the National Bank and the following year by the three Australian banks. By November 1969, all branches were using the Databank batch service, based on six IBM 360/40s, one in each of the country's biggest population centres.

Cheques and other documents would be collected by couriers from each branch and run to the nearest computer centre for processing.

The basic services of cheque clearing and processing of the banks' internal accounts were the first applications handled.

The data for cheque clearing is captured from magnetic ink encoding on the cheque forms. The practice which above all made the system workable was the adoption of a uniform customer number by all five banks. This is still claimed as a unique feature. It identifies each customer regardless of the number of accounts operated. The individual account is indicated by a suffix.

The cheque form also carries a serial number, a code number for each of the five banks, a code for the branch and a code indicating the transaction type. After the cheque is written out,

by Stephen Bell

branch staff add to the line another magnetic ink figure showing the amount of money involved.

The expansion of Databank's workload led in due course to the installation of 360s in other parts of the country, while the busiest installations, in Wellington, the capital, and Auckland, the largest population centre, were upgraded to 370/145s.

These upgrades served for a time, but the growing volume of business and the take-on of new applications soon had the consortium looking at the possibility of an online network.

It was a logical development to centre the network on the bigger Auckland and Wellington

machines, using the 360/40s as subsidiary nodes.

Under the new system, cheques and deposit records collected from each branch by courier are taken each evening to the nearest of the small centres, known as Network Centres. The machines here still do the basic accounting, but for updating of the master files, the data is sent down the line to either the Auckland or Wellington node where these files are kept. These two nodes, known no longer as a courier, they receive all data online from the Network Centres and perform the updates on each customer's account. Output data is then returned to the appropriate centre for printing.

The data transfer rates involved in this exercise are impressive by anyone's standards. A typical Network Centre, such as the one in 100,000 transactions (about 6 million bytes of information) to the Wellington Central Processing Centre each weeknight, between 8pm and midnight.

About 27 million bytes are sent back down to the Network Centres where the printer disgorges, at night, between 2am and 8am, 900,000 lines of data each ready for distribution to the branches next morning.

Applications have developed too, beyond the original cheque

The CPCs, of course, are also exchanging data with each other. From the point of view of the Wellington centre, this means a total of about 28 million bytes of input and 130 million bytes of output per night.

In addition to supporting a high data rate, the network set-up was required to be flexible to cope with the terminals of various types which were being requested for installation at 100 branches themselves. A variety of protocols had therefore to be supported.

IBM produced no suitable equipment at the time, said Shaw, and the solution eventually adopted was to front-end each IBM mainframe with a

clearing and accounting program transfer service. The network has been direct, and the system will have to handle bank-credit and debit cards which being introduced in New Zealand.

Databank now also supports a range of specialised services directly connected with banking process. These include a bank account record service, and an accounting analysis package. The currently serve 7,000 customers.

Many of the core government departments, larger companies, with their own computer equipment, are now using the Databank system.

Such "paperless" transfer may account for about 10% of New Zealand banks' business. This is described by Shaw as "reasonable proportion" of the country's total. Shaw admits that, at the time, Databank had not given high expectations of "electronic banking". It thought that "technology" would provide the answers, but it is now seen that people are the limiting factor.

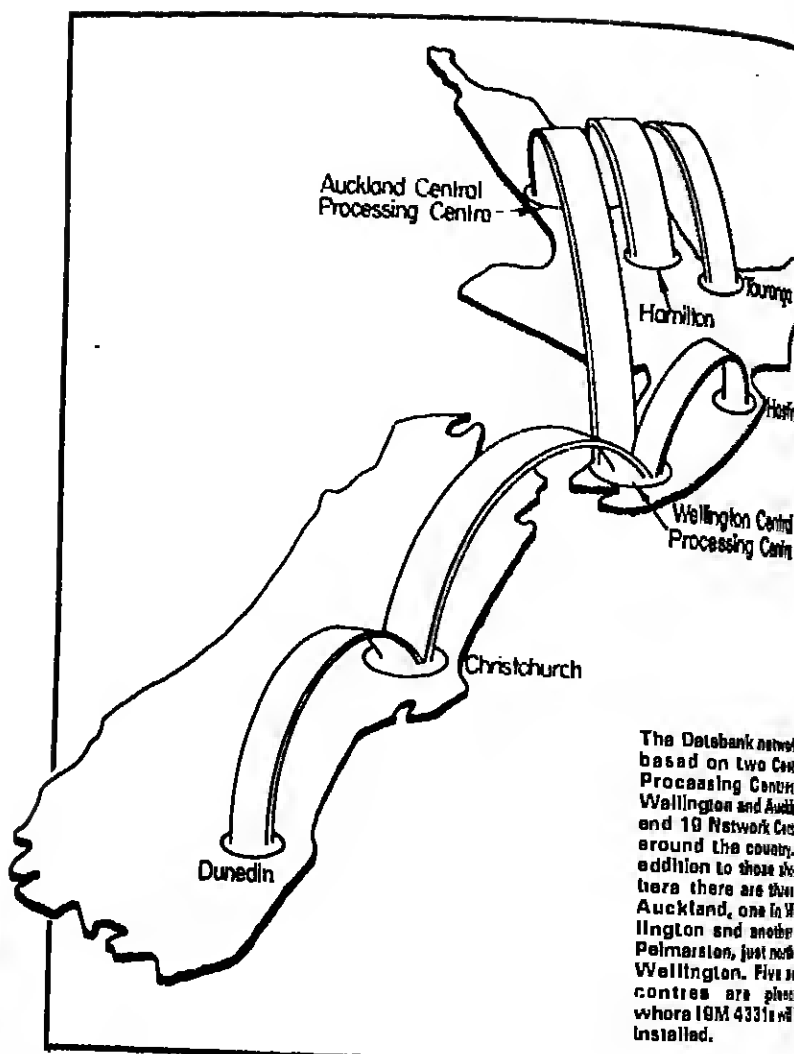
Databank is owned jointly by the five banks, and has an independent chairman and board consisting of representatives of each bank.

The banks own their own terminals and controllers, and are charged on a throughput basis for use of the network.

With five competitive banks using the same computer system, questions of confidentiality clearly arise. Each bank is fully protected from access to accounts at another bank's same bank is secure.

As for confidentiality, banks' individual business plans, there has been no leakage from the common network. It is still possible, says Shaw, that individual banks will develop development plans with the bank, without this becoming obvious to its rivals. "We think, though, says Shaw, that the banks are talking about it."

From small beginnings, the seven staff, Databank has grown to be the largest private sector DP operation in the Southern Hemisphere, with about 1,000 employees, an investment in computer equipment exceeding £19 million, and a growing world-wide reputation.



The Databank network based on two IBM 360/40s and 10 Network Centres around the country, addition to these there are three other Network Centres in Auckland, one in Wellington and another in Christchurch. The network is a closed system, with all data passing through the central processing centres.

Univac communications processor makes a hit with the airlines

THE new Univac DCP-40 communications processor is a hit in the airlines business. Following an order for 12 from SAS (CW, November 1, 1979), Univac has received orders for 21 from SITA, the international telecommunications network operator which serves international airlines.

Already based on Univac 400 series processors, SITA is implementing a new Data Transport Network, DTN, which initially will consist of nine interconnected nodes. Like SAS, SITA will also be using a special airline version of Univac's Telon networking software. The DCP-40 is a newly developed fast 16-bit minicomputer and is built using the Motorola 10800 high-speed bit-slice microprocessor.

Finnair is also buying one DCP-40 as well as two of the equally successful new Univac 1100/80 mainframes, which are built using the same technology.

Univac reports that in the first four months of marketing, more than 100 1100/80s worth more than \$70 million were ordered, and that the new machine could turn into an even bigger success than the company's other big seller, the larger 1100/80.

IBM has long had its eye on the Bank of China, which has more than 40,000 branches throughout the People's Republic.

In September the company was said to have won an order from the Bank of China for six of its medium-scale M-series mainframes (CW, September 13, 1979). Hitachi has now announced that it is to begin work on a \$1 million order from the Bank of China in March. The order is for 11 medium-scale M-series machines and 21 office computers.

IBM has long had its eye on the Bank of China, which has more than 40,000 branches throughout the People's Republic.

Another project will provide 150 households in the town of Elie with fibre optic links for all communication services (CW August 24, 1978).

development. One in the Winnipeg area, Project Ida, is to start at the end of January with 37 terminals on a packet switched coaxial cable network and provide meter reading and alarm services as well as information.

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Berlin seminar on commercial use of US Space Shuttle

THE new manufacturing and processing techniques that will be made possible by the US Space Shuttle are to be discussed at a seminar in Berlin next month. Entitled Utilization of the Space Shuttle, the seminar will be co-ordinated by Dr Joel Levy, a

consultant to the National Aeronautics and Space Administration, who has predicted that by the year 2000 the shuttle space transportation system could generate up to \$90 million in commercial revenues. Among the topics to be covered during the

seminar are the production of semiconductor crystals, pharmaceutical materials and thin-film electronic devices in zero gravity. More details on the seminar can be obtained from the Congress Organisation, Joachimstrasse 19, D-1000 Berlin 16.

Fujitsu strengthens its foothold in Australia

JAPAN'S Fujitsu has picked up two important orders in Australia bridging its base of medium and large-scale mainframes there to six. It has finally landed the Australian Bureau of Statistics contract with its biggest machine, the M-200, and the first M-160F outside Japan is going to an Adelaide building society.

The Bureau of Statistics contract was almost landed by Fujitsu with an M-190 two years ago, but after a suggestion that individuals associated with Fujitsu had been in a privileged

position during the selection process, Australian premier Malcolm Fraser ordered a re-run of the selection.

Price-performance and locally procured content are reported to have won Fujitsu the contract on the second round. Valued at \$US 25 million, the machine will start as a 6Mb M-200, but will be extended to a dual processor with the two processors sharing 12 megabytes of main memory. It will ultimately be backed by 20,000 megabytes on disc. It will run under the OSIV/F4

operating system, which is Fujitsu's rewrite of IBM's MVS. MSP of the UK will supply its Testmanager program and the Status information retrieval package developed at Harwell atomic research laboratories will be used.

The Australian high level job control language JOL from Clarke Computer Software will also be used.

Online Computer Services of Adelaide, the data processing subsidiary of the Co-operative Building Society, is installing a Fujitsu M-160F early this year. The three megabyte mainframe, worth about \$1.2 million, will be used for the building society's own processing and to provide services to four other building societies.

The Fujitsu F-series consists of four models announced in response to IBM's 4300 series and extending in power from below the 4331 to well above the 4341; the M-160F is the largest and will run under Fujitsu's OSIV/X8 operating system which was developed to provide emulation for the company's earlier 230 series of mainframes.

The Australian government Commonwealth Scientific and Industrial Research Organisation, CSIRO, has a Fujitsu M-190, while earlier models of the

Continuing to expand its production capacity at an aggressive rate, National Semiconductor has announced plans to erect a new semiconductor wafer fabrication plant in Vancouver, Washington, US.

The move follows the trend set by several semiconductor manufacturers in expanding outside the growing restrictions on both people and housing found in California's Santa Clara valley, the home of the industry.

A 200,000 square foot factory is to be built that should eventually employ some 2,000 people. It is scheduled to be operational by 1981.

The need to locate in an area that would attract a large number of technical professionals was one of the main reasons for choosing Vancouver as the new site, said a company spokesman.

Earlier this year, National revealed plans to expand its facility in Greenock, Scotland with a £45 million extension (CW, July 26).

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Combat simulator

COMPUTER generated images projected on the inside of 40-foot domes are to be used by the US Navy to train pilots for the F/A-18 Hornet fighter aircraft.

One scheme, the Vidon project planned by Alberta Government Telephones, is to start with 100 terminals on a dedicated network of cable pairs using packet format transmission, and grow to 2,000 terminals through an agreement with real estate developers whereby cable links will be installed in new houses as they are built.

Three companies are making Telon terminals so far — SED Systems, Norpak and Northern Telecom — and 1,600 terminals have been ordered for the various trials.

Manitoba Telephone System has two separate projects under

development. One in the Winnipeg area, Project Ida, is to start at the end of January with 37 terminals on a packet switched coaxial cable network and provide meter reading and alarm services as well as information.

Another project will provide 150 households in the town of Elie with fibre optic links for all communication services (CW August 24, 1978).

Such "paperless" transfer may account for about 10% of New Zealand banks' business. This is described by Shaw as "reasonable proportion" of the country's total. Shaw admits that, at the time, Databank had not given high expectations of "electronic banking". It thought that "technology" would provide the answers, but it is now seen that people are the limiting factor.

Databank is owned jointly by the five banks, and has an independent chairman and board consisting of representatives of each bank.

The banks own their own terminals and controllers, and are charged on a throughput basis for use of the network.

With five competitive banks using the same computer system, questions of confidentiality clearly arise. Each bank is fully protected from access to accounts at another bank's same bank is secure.

As for confidentiality, banks' individual business plans, there has been no leakage from the common network. It is still possible, says Shaw, that individual banks will develop development plans with the bank, without this becoming obvious to its rivals. "We think, though, says Shaw, that the banks are talking about it."

From small beginnings, the seven staff, Databank has grown to be the largest private sector DP operation in the Southern Hemisphere, with about 1,000 employees, an investment in computer equipment exceeding £19 million, and a growing world-wide reputation.

Applications have developed too, beyond the original cheque

development. One in the Winnipeg area, Project Ida, is to start at the end of January with 37 terminals on a packet switched coaxial cable network and provide meter reading and alarm services as well as information.

Another project will provide 150 households in the town of Elie with fibre optic links for all communication services (CW August 24, 1978).

CORAL NEWS

STANDARDISATION:
A British Standard for CORAL 66 has been issued by BSI and is available at £1.50 from their office in 101 Portland Road, London N1 3BQ. The standard incorporates comments made on the MOD Official Definition — the Blue Book. CORAL 66 has been accepted by ISO as a candidate for international standardisation and they are circulating the draft for international reactions.

CORAL AVAILABILITY:
From four computers in 1969, compilers now cover 36 machine ranges and are available or under development for machines from the following manufacturers: CIL, Computer Automation, Control Data, CTL Data General, OEC, Ferranti, GEC, Hawell Packard, Honeywell, IBM, ICL, Intel, Konigsberg, Modcomp, Motorola, Nordan, Norsk Data, Perkin Elmer, Plessey, Prime, Rank Xerox, SEL, Smiths Industries, Sperry Univac and Telex Instruments.

TRAINING:
Courses in CORAL 66 are regularly offered by several organisations including John Bell, CEGS, Ferranti, GEC NCC, Preston Polytechnic and SOL NCC's Real Time Program Design course was developed for the CORAL 66 groups, and runs for two weeks starting 3rd September and 18th November.

BOOKS:
Two books are available on CORAL 66. John Webb's "CORAL 66 Programming" and Halliwell and Edwards' "A Course in CORAL 66". The books are £5.00 each from technical bookshops or NCC — the publisher.

MASCOT:
MASCOT — Modular Approach to System Construction, Operation and Test — is an integrated approach to design, implementation and testing of real-time parallel processing software based on a form of modular decomposition.

A CORAL CASE STUDY
Now software developed by Warren Point Limited of Slough for automatic on-call testing could improve airline safety. The complexity of modern aircraft systems requires stringent and clear maintenance procedures and testing takes place on a variety of equipment in different environments. ATLAS, an international test language, was published in 1969, so that specifications could be written in an unambiguous English language suitable for use by all concerned. The language is now being used by the airline industry to program test sequences for automatic testing equipment.

"Mica" has three main parts. A table-driven pre-compiler which checks syntax and semantics and produces intermediate code. A resource analyser to check the availability of resources and switch paths. A code generator which converts the intermediate code into directly executable machine code for the target automatic test equipment.

CORAL 66 was selected for writing "mica" because of the complexity of ATLAS called for a compiler considerably larger than conventional compilers. The main reason there was the need for a language with a procedural block structure and a low overhead on machine code. The compiler was developed on a POP11/34 configuration and will run on as little as 42k of working store.

Being table driven, "mica" uses only the necessary subset of ATLAS and is suited for a particular procedure. It will also be able to accommodate any future enhancements to the ATLAS language.

Further implementation of their portable CORAL 66 compiler have been announced by Systems Designers Ltd. The latest compilers are on Motorola M6800, Intel 8086 and Hewlett Packard HP 1000. SOL say that they are also producing a CORAL 66 compiler that will cross-compile from the POP11 and the Ferranti Argus 700 to the Plessey Mipsco.

CERN (The European Organisation for Nuclear Research) Geneva uses CORAL 66 on Ferranti Argus computers.

Communications 80

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With a strong commitment to future development the company is one of the fastest growing organisations in the UK and a leader throughout its world-wide market-place. In addition to the excellent commencing salaries they are able to offer five weeks' annual leave, a comprehensive pension scheme with free life assurance, generous relocation expenses where appropriate and an interesting future at the forefront of communications development.

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-NETWORK DESIGN:

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SW2/1001/CW

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A COMPUTER WEEKLY HANDBOOK BASIC FILE DESIGN BY OWEN HANSON

This book provides a brief but authoritative review of the most frequently used file organisation techniques, and of related subjects such as data security and software aids.

The file designer is shown how to choose between the available techniques on the basis of known or forecast information rather than rule-of-thumb, and methods of ensuring that the correct choice has been made are given.

New work carried out by the systems analysis division of the City University Business School, London, is linked with previously published information to provide methods of optimising the performance of sequential, direct and indexed files. Marked improvements can be achieved, particularly with direct files, which are worthy of wider use than at present.

Students of data processing, lecturers and practitioners should all find the book invaluable, particularly because it provides a great deal of information and many illustrations in a very compact format.

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Contact: Jim Baker

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Career positions involving a mix of analytical and programming activities in the development of a large management information system. Applicants must have experience of one or more of the following: IBM 370/138, OS/VS1, VM 370, TOTAL, ENVIRON, DL/1, EASYTRIEVE. Great benefits and full relocation offered.

Contact: Andy Wright

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An expanding and profitable software house has an urgent need for commercial Analyst/Programmers with extensive experience of designing systems to run on any of the following: IBM System 3, 32 or 34. Applicants should be business minded and competent RPG II Programmers.

Contact: Margaret Stevens

Systems Analysts

Coventry **c. £6,200 + Overtime**
A multi-national engineering company is seeking SYSTEMS ANALYSTS to assist with a major systems redevelopment programme involving advanced technology. Applicants should have at least 1 years systems design and development experience. Familiarity with IBM 370 terminology would be an advantage.

Contact: Bev Stevens

Senior Consultants

London **c. £10,000**
One of the largest software houses in Europe wishes to appoint Senior Systems Consultants. Candidates should have six years in d.p. with most of it spent in design and development of commercial systems as a DPM or Project Manager on IBM, ICL or Honeywell mainframes.

Contact: Jim Baker

Production Control Systems

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A medium sized engineering company is seeking a SENIOR SYSTEMS ANALYST to work on the development and implementation of production control systems within their UK Group. Applicants should have a minimum of 3 years commercial analysis and design experience with a bias towards production or manufacturing systems. Experience of an IBM 370 environment would be an advantage.

Contact: Bev Stevens

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Near Windsor **£8,000 - £10,000**
One of the leading mini-computer manufacturers wish to increase their software development group to meet the demand for efficient and versatile systems in the various sections of d.p. The Company's emphasis on easy-to-use systems has many implications for the design of its compilers for the 1980's. Applicants must have some practical knowledge of compiler design. If you know that you can design the best compiler, now is your chance to show your ability to apply innovative and creative techniques.

Contact: Mike Creamer

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PLUS MORTGAGE SUBSIDY

Our Hampshire client is installing a new Redifon R830 machine early in 1980 and wish to recruit several Programmers to form a new section to deal with financial, accounting and insurance projects. Candidates must be fully conversant with applications programming in a high-level language (e.g. COBOL) on a proprietary mini-computer system. Knowledge of word-processing would be an added attraction. The company offers tremendous benefits including a mortgage subsidy, non-contributory pension, generous relocation package, etc.

Contact: Mike Creamer

JAMES BAKER ASSOCIATES,
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Tel: 01-439 9311

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Our client, a progressive IBM installation is seeking a COBOL Programmer with sound IBM experience preferably gained in a manufacturing environment.

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SYSTEMS ANALYST
This medium sized IBM installation offers a wide range of involvement for an experienced Analyst with good IBM knowledge and an engineering/manufacturing background.

PRESTON **£6,500**
SYSTEMS ANALYST
If you have around 2 years experience in a fairly large environment our client can offer a the latest IBM hardware and systems. You need good experience, on any hardware. Programming knowledge an asset.

ROSSENDALE **to £8,000**
SENIOR PROGRAMMER
This go-ahead organisation requires a Senior Programmer with good COBOL skills preferably on Honeywell hardware. You will be involved in a wide range of developments, and must be self-motivated and willing to take responsibility.

LIVERPOOL **£7,300 + bonus**
SENIOR ANALYSTS
This large organisation seeks a number of Senior Analysts to cover major developments on mini and mainframe hardware. A background of large systems development together with a good academic record, preferably to degree level is required.

CHESHIRE **c. £7,500**
REAL-TIME HARDWARE DESIGN
This prestigious client requires further hardware design expertise in the real-time process control area. Conditions of employment are excellent as are career progression possibilities.

BURNLEY **c. £5,000**
RPGII PROGRAMMER
This small, friendly installation is seeking a young RPGII Programmer with over 12 months experience. Hardware is IBM S34 with on-line developments.

MERSEYSIDE **to £6,500 + bonus**
SENIOR ANALYST/PROGRAMMERS
This major IBM user is committed to large scale developments and requires additional staff with over 2 years experience. You should combine good COBOL skills with some analysis involvement. Machine background is not important as excellent training is available.

MERSEYSIDE **to £6,500 + bonus**
SENIOR ANALYSTS
Our client offers training on IBM CICS, DL1 and SNA techniques where required if you can combine a programming background with in-depth analysis experience. This is a unique opportunity with a progressive company.

MANCHESTER **to £8,500**
ANALYST/PROGRAMMERS
This expanding company now needs a number of Analyst/Programmers with over 2 years experience of ICL hardware and COBOL, together with some analysis involvement. This is a fast moving company and offers a wide variety of work.

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This company will install a 4341 later this year, and requires Analysts with good IBM experience together with some on-line and data-clip exposure, preferably in a retail or general commercial installation. Projects not excellent.

MANCHESTER **to £8,000**
ASSEMBLER PROGRAMMERS
If you have around 2 years IBM ASSEMBLER experience our client will offer involvement in Data-base and on-line systems on IBM 370, and later 4341. Experience in CICS and on-line systems an advantage but not essential.

Phone STEVE SYKES on LEEDS (0532) 444185 (daytime) or LEEDS (0532) 444185 (evenings and weekends) for these and other NORTH WEST vacancies, or write with brief details (no stamp required) to Lorien Computer Services, FREEPOST, Leeds LS7 3YV.

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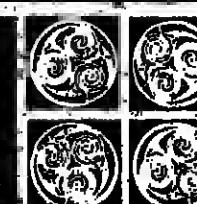
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Computer Graphics

The BBC Television Service has a computer graphics system which was used successfully last year to support the General Election Results programme.

Its use is currently being extended into other television programmes.

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Senior Systems Analyst
£9,591-£12,144 p.a.

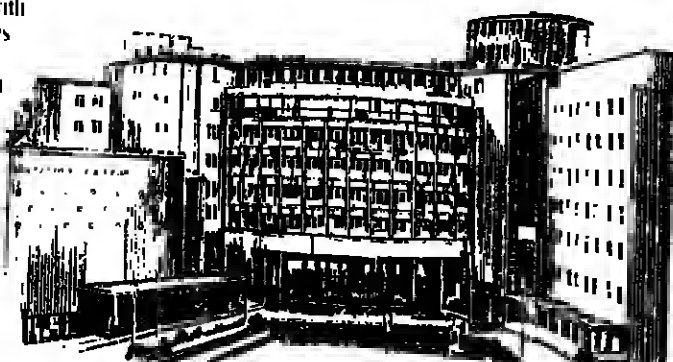
Broadcasting presents a different environment to that experienced by many analysts and so a flexibility in the work involved and adaptability of approach is paramount as well as the ability to communicate effectively with artistic staff. An established record of systems design and implementation is necessary, with preference being given to candidates with computer graphics and PDP11 experience. An interest in television output, e.g. Current Affairs, Sport, etc. and in art and design would be desirable. Reference 1834/CW.

Analyst Programmer
£7,341-£8,751 p.a.

An Analyst Programmer is required to help develop additional software. The successful applicant should have the experience

and willingness to accept a wide variety of software assignments from applications programs to systems code. Current software is mainly in PDP11 assembler and RTL2 running under RSX-11M. Further developments in BASIC are envisaged. Experience in some of these, but especially Macro-11 is considered a pre-requisite and an interest in graphics would be advantageous. Reference 1835/CW.

Starting salaries according to qualifications and experience. For further information and an application form telephone Sally Spencer on 01-743 8000 Ext. 4593 or contact us immediately for an application form (quote relevant reference number and enclose s.a.c.) BBC Appointments, London W1A 1AA. Tel. 01-580 4468. Ext. 4619.



BBC tv

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The successful candidate will have at least 2 years experience of programming micro or minicomputers in assembly and high level languages for real time applications and experience in systems design and analysis. He/she will understand the technology and interfacing of microprocessor systems and have the ability to liaise easily with electronics and systems engineers to produce rapid and effective development programmes.

The position is particularly important since it is the first of its type within the company and is combined with full policy of expansion in our development activities. It provides an excellent opportunity to create and develop a software team which will undoubtedly support our future expansion of development.

Candidates should hold a 1st Degree standard and have the considerable knowledge and experience required for this important post. The post will be based initially at Harpenden but will move to Watlington, Oxon, by mid-1980.

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(DR/336) All Levels IBM COBOL ASSEMBLER
(DR/337) 3+ years ICL COBOL Supervising
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MANCHESTER

(DR/339) 12+ months ICL COBOL
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(DR/345) 2+ years ICL 1900 COBOL
(DR/346) All Levels PDP BASIC Experience
(DR/347) All Levels ICL 1903 (GEORGE III)
(DR/348) All Levels ICL 2900 (VMEB)
(DR/349) 2+ years NCR COBOL

SHEFFIELD

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(DR/352) 2+ years IBM COBOL/ASSEMBLER
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LIVERPOOL

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(DR/358) 2+ years IBM Commercial Systems
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(DR/360) 2+ years (plus Programming Background)
(DR/361) 2+ years Business Experience
(DR/362) 18+ months Systems/Applications

MANCHESTER

(DR/363) 2+ years IBM Environment
(DR/364) 2+ years General Business Experience
(DR/365) 2+ years Retail Environment
(DR/366) 3+ years General Systems Experience

LEEDS/BRADFORD

(DR/367) 4+ years (including programming background)
(DR/368) 2+ years IBM Business Environment
(DR/369) 2+ years Retail Environment
(DR/370) 18+ months Commercial Business Experience

SHEFFIELD

(DR/371) 4+ years ICL Business Background
(DR/372) 18+ months General Commercial Experience
(DR/373) 2+ years Business Environment

TYNE & WEAR

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c.£6,500 Surrey

If you want to gain more than just experience, then situated in the heart of Surrey is a service organisation which has recently set up a new computer section centred on an ICL 2900 installation. Until now, the department has been concerned mainly with financial systems, but it is preparing to increase its workload to cover a wider range of communication based systems. To join them at this interesting time of further development they want an ambitious man or woman with management potential.

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A salary of £5,858-£6,884 will be negotiated depending on age and experience. They also offer a wide range of benefits including a 36-hour week, 4 weeks' annual holiday, superannuation scheme and yearly salary increments. Where appropriate, generous relocation expenses to this busy country town will also be paid.

So if your environment is as important to you as your career, write for an application form, quoting Position Number AES 211 to, Austin Knight Limited, 66a High Street, Egham, Surrey, TW20 9EV.

Applications are forwarded to the client concerned, therefore companies in which you are not interested should be listed in a covering letter to the Position Number Supervisor.

AK ADVERTISING

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in its 370/14BVM Centre

The right person will have several years' experience as a systems programmer and a detailed knowledge of on-line systems, OOS/VS, POWER, VSAM, CICS and Assembler. A knowledge of VM/370 and DL/1 would also be desirable.

Candidates should have English or French as mother tongue and a working knowledge of German.

Salary commensurate with experience, first-class pension and welfare schemes and other ancillary benefits. Staff restaurant; own Sports Centre.

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Holt-Saunders Ltd., 1 St. Anne's Road,
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holt-saunders

Recruitment



In Informatics

Mini & Micro Software

Holland

Would you like to join the permanent staff of a world leader in Mini & Micro computer applications? The company itself is a British based international group with offices in five continents. They specialise in the supply of Bespoke turnkey systems based on Mini & Micro processors specifically in the Communications, Message Switching, Network, Process Control and basic software fields. Any Assembler language is desirable.

To meet their expansion goals they are creating numerous additional specialist project teams requiring Consultants, Project & Team Leaders, Analysts and Programmers at various levels, specifically: a) 5 years plus b) 2-5 years c) Trainees up to 2 years. If the idea of working at the sharp-end of sophisticated technical computer pioneering appeals, and joining a very prestigious company is meaningful in your career

development then you must give consideration to these opportunities. The company offers, in addition to a substantial salary, a) Full overseas relocation expenses b) 8% holiday bonus c) Resettlement advance d) Initial accommodation allowance for you and your family e) assistance with home purchase f) medical and pension schemes etc. Interviews will be held in London during January and firm offers of employment made within 10 days. You will also be given the opportunity of visiting our client in Holland to sample the working and living environment. Expect to negotiate in the range: Ref: 10/1/A

£11-17K

T.P. Software Engineers

Greater London, Salary: to £12K

Our client is a Major U.S. owned Systems and Product Support multi-national recognised as a market leader in its chosen field. Owing to continued expansion in U.K. (particularly Central and Southern England) the company is seeking top calibre Teleprocessing personnel. The Company has a stated preference for candidates with a proven record in the installation and support of software packages to both new and existing customers. Candidates who can offer in-depth and

continuous exposure in an advanced IBM 370 or 303X T.P. environment of PDP 11 or VAX 11 environment are especially favoured as is additional knowledge of TOTAL, SHADOW or RAMIS. You will probably be employed as a Software Programmer or Systems Engineer with a Manufacturer or large scale user. First interviews will be conducted in our offices in mid and late January. Ref: 10/1/B

Development Specialists

Home Counties, Salary: to £8.5K

A Mini-Computer Manufacturer and Total Systems Supplier based in the Northern Home Counties with easy access by road and rail to both London and the Midlands has requested LOGISTIX to identify dynamic technicians for several varied challenging positions. Having designed a program building language to enable naive D.P. users to write their own programs, the company now requires Development Programmers to write and code this new product and provide customer support once the software is installed. Successful candidates will ideally have 2 years COBOL or ASSEMBLER experience on any leading mini-computer coupled with extensive interactive data-entry experience. Probably they will be in their mid 20's (although age is not expected to be a barrier) and will have some

experience of customer support both in-house and on-site. It is anticipated that this new product will radically alter programming techniques and consequently many programmers will need to re-assess their own career paths. These positions will therefore appeal to those who prefer to mould their careers according to their wishes rather than be carried along by events. Simultaneously, a second division of the company requires Programmer/Analysts to develop accounting systems based on an Applications Package used by the U.S. based parent company. Whilst the hardware used will be a market leading mini the successful candidate will not necessarily have mini-experience although past applications expertise should have been in the financial area. Ref: 10/1/C

Programmers & Consultants

London and Thames Valley, Salary: to £11K

An internationally renowned Software Products and Consultancy Group is seeking additional Programming and Design personnel at all levels of experience. Generally, applicants should either be working at Project Leader, Systems Designer or Senior Programmer levels in either an on-line or Data-Base environment. Experience with any TR monitor or DBMS package will reflect in the already generous salaries offered. Your commercial expertise should preferably have included involvement in hardware selection, organisational review and systems implementation. You will be given an opportunity to act in both pre and

post sales once the company's initial four weeks product orientation course is completed. The company offers an outstanding portfolio of company benefits including a minimum of four weeks holiday allowance. Group medical insurance and life assurance is already in operation whilst the company operates a bonus scheme for extraordinary performance. In addition full removal assistance is available where appropriate. Local interviews in London, Reading area or our offices will be arranged to suit individual requirements during January and February. Ref: 10/1/D

Logistix, 360 Oxford St. London W1N 9HA

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Telex: 28800

Logistix wishes its applicants and the following clients a prosperous 1980

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Winners of our recent competition, who will receive their prizes tonight, were

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S. Choppin, W. Sussex
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UNIVERSITY OF SOUTHAMPTON COMPUTING SERVICE

PROJECT SUPPORT OFFICER

within the University's ICL PASCAL compiler project. The successful applicant will be responsible for the maintenance of the computer involving a substantial amount of liaison with the computer manufacturer, and will assist in the development programming experience is necessary but familiarity with use of computer operating systems and utility software is essential. The post will be tenable for a period of 2 years. Salary in the range 18 — £3775-28355 p.a.

Applications giving date of birth, details of qualifications and experience and the names and addresses of two referees should be sent to: Mr. P. Vaughan-Smith, Staffing Department, The University, Southampton SO9 4NL. No further particulars may be obtained. Please quote ref: 1109/A/CW.

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Our Client is a UK Manufacturer of distributed intelligence and multiprocessor business systems. They are well established, financially stable and are enjoying a major share of the market. Further to this, the Company has a large, successful and loyal customer base which offers a continuing source of business. Their growth (40%) is exceptional and is continuing. This has necessitated a planned expansion of the sales force with the immediate need for Sales Executives in the **London and South-East** areas.

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Full initial and on-going sales plus product training will be provided to give you every opportunity to join the high number of Sales Executives who exceed quota, capitalising on the "COMMISSION ACCELERATOR" to achieve earnings in excess of £17,000 per annum.

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Interviews will be held in London or Birmingham.

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£7,500

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Specialising in high quality, comprehensive modem/multiplexor/network control systems, they have rapidly captured over 50% of the current private installed market in the UK. Their service and reputation in support is second to none. Turnover has risen to the current rate of £20 million per annum.

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Such growth has given rise to two key positions.

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Essentially with a full understanding of data communications systems. You will work in a role which will comprise pre/post sales support and engineering responsibilities. Thus sales empathy will be as important as technical awareness.

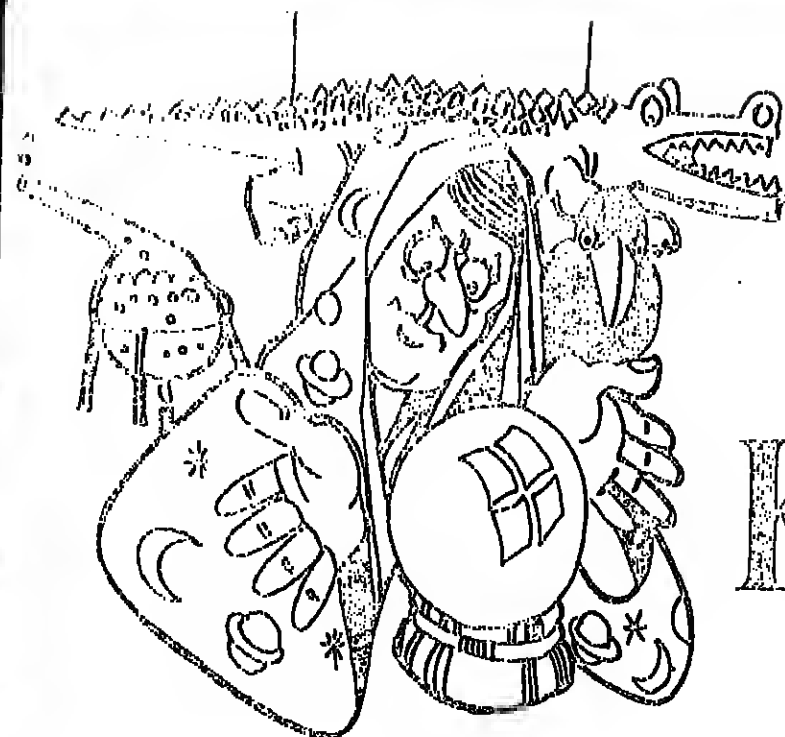
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This hardware/software function has a bias towards the product — a comprehensive micro based network management system. Your background would probably include experience of small commercial business systems.

Both positions carry the use of a Company Car.
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We require 2 PL/I programmers and 1 RPGII programmer for conversion work. January start for short term contracts.

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At least 5 persons required for initial 3 month contract. Preferably with Honeywell L62 Cobol experience but will consider any series 60 experience.

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Good H/W 66 GCOS COBOL Programmer and Analyst Programmer with IDS/TDS exp. preferable. January start. Initial 6 month contracts.

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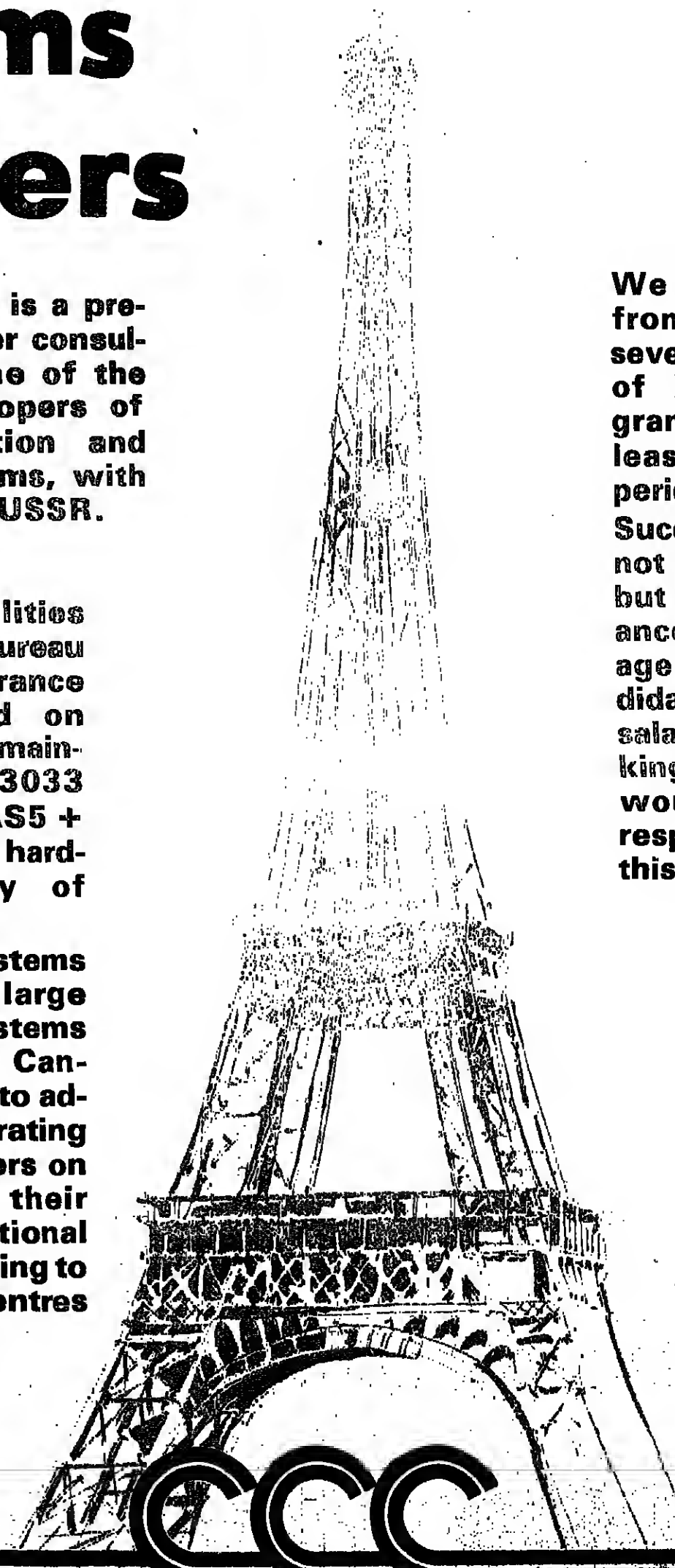
The company's capabilities include twelve service Bureau computer centres in France and elsewhere based on several very large IBM mainframes e.g. 370/168, 3033 etc, in addition to ITEL AS5 + AS6 plus various other hardware from a variety of manufacturers.

They wish to recruit Systems Programmers for the large IBM mainframes in a Systems Engineering capability. Candidates will be required to advise on large MVS operating systems, supporting users on the best use of their machines, writing additional utilities and some travelling to the various computer centres in France and overseas.

We would like to hear from candidates with several years' experience of IBM Systems Programming including at least two years' experience

Successful candidates do not need to speak French but will be given assistance to learn the language in due course. Candidates can expect a high salary and excellent working conditions that one would associate with responsible positions of this kind.

CW2/1



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Based in Switzerland, successful candidates will be required to take full responsibility for all stages of development from design through to implementation. Broadly speaking, we are looking for candidates to concentrate on establishing new standard software and will most likely have worked with or have an interest in most of the following: modern real-time software, database technology, man machine communication and multi CPUs systems.

The standard software forms the basis for projects being developed for a world-wide user base and so some candidates may be called to travel to South America, Middle East and Far East etc. for short term commissions or long purposes.

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Remuneration will be high for the successful candidates and totally consistent with local standards. Interviews will be held in London in the early Spring.

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For further information of the above opportunity please telephone John De La Mare on 01-834 7105, or write to 82, Grosvenor Place, SW1.

CVM/2

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Cheshire

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Applicants should preferably be educated to degree level and have 2-3 years programming experience.

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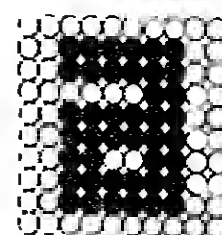
To apply please write giving brief details of age, qualifications and experience to:

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JBA

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c. £15,000 package plus car

A well established organisation is about to market a new micro-based commercial system and requires a Sales Executive to take initial responsibility for this product.

Candidates must have a proven record with either a small business systems manufacturer or a software services company and have the maturity and initiative to work on their own.

An exciting opportunity in a brand new field.

Contact: Jim Baker

Automation and Control Systems Analyst/Programmers, Team Leaders, Project Leaders

London Based

to £11,000

We have been asked by a major systems house to identify technical personnel at various levels to work on new projects in the field of Industrial Control and Automation.

We are looking for professional systems designers with skills in one or more of the following areas:-

- * multi-mini/microprocessor system architecture
- * advanced real-time programming methods
- * experience gained in a closely related application area with a manufacturer or user.

Successful candidates are likely to be of graduate calibre, with a high level of proven capability in the design, implementation or management of technical applications.

Above average salaries and benefits.

Contact: Margaret Stevens

IMS Project Manager

Birmingham

Earnings c. £10,000

An international engineering organisation is seeking a PROJECT MANAGER to formulate the standards and design methodology relating to the use of data base technology (IMS) at their new data centre.

Applicants should be experienced computer professionals and have a thorough knowledge of IMS consolidated by practical experience.

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£8,000 - £12,000

Designers with experience of on-line systems in large machine environments, possibly including graphics output, are required to join one of the most technically advanced projects currently being developed in the U.K. Opportunities for progression to project control positions will be made available for technically able and ambitious technicians of some seniority, whilst for more junior candidates team leader/senior designer posts are on offer once capability is proven.

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up to £8,600 + benefits

Our client, a major company in the Insurance business, is to commence a new project early in 1980. A Senior Systems Analyst with in-depth general insurance experience is required to control the project from feasibility through to implementation. A good background is necessary in database techniques and on-line applications.

Benefits include a heavy mortgage subsidy, non-contributory pension, free permanent health insurance and many others, including very generous relocation expenses. Contact: Mike Creamer

Viewdata Systems (Programmers)

London

Salaries negotiable

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Candidates should have a minimum of 18 months experience. IBM OS or PDP-11 is preferred but any COBOL is acceptable. Previous experience in Viewdata or publications systems is not necessary.

In addition to very good starting salaries, the Company offers two bonus schemes and attractive fringe benefits.

Contact: Bernard Kiernan

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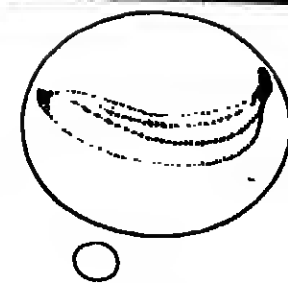
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Programming in Music Publishing

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Based in Ilford, the team is responsible for designing, developing and supporting computer systems for the Divisions' various world wide publishing houses.

Initially you will be involved in the development of order entry and accounting packages, this will mean working abroad for short periods during the early part of 1980. An IBM system 34 is being installed at Ilford during 1980, part of a world wide hardware installation programme. IBM mainframe equipment is also currently in use and there will be every opportunity to work on projects using this equipment.

Experience of Data processing within the publishing industry would be an added advantage.

There is a comprehensive employment package (including luncheon vouchers, annual bonus and staff discounts).

Salary will be negotiable according to experience.

If you are interested please send your c.v., or write or telephone for an application form to:-

Ann Stradwick,
Polygram Publishing Division, 60-70 Roden Street,
Ilford, Telephone: 01-478 6922.

polygram

JBA

Senior Software Lecturer & Computer Operations Supervisor

The Technical Marketing Department of this large computer manufacturer runs an Education Centre for customer training, incorporating several in-house mini-computers which provide for training aid, demonstrations and benchmarking.

Senior Software Lecturer c.£8,000

Candidates, male or female, will preferably be educated to degree standard, have several years experience in the industry involving some exposure to the intricacies of operating system software. In addition to giving courses, the lecturer will be expected to prepare new course material and keep existing courses up to date. Occasional travel may be necessary.

Computer Operations Supervisor c.£7,500

The Supervisor will be responsible for the satisfactory operation of the computers, ensuring that the right hardware and software is available and kept up to date and for allocating computer time. The post will be of interest to programmers or engineers, male or female, who wish to become familiar with the operations management aspects of a computer installation.

These posts are situated in a pleasant part of Hertfordshire close to London's green belt.

Contact: Mike Creamer,
James Baker Associates,
International Personnel Consultants,
32 Saville Row, London W1.
Tel: 01-438 9311.

SALES

CORK

A market leader in the manufacture and sale of small to medium range business computers with a positive approach to marketing is seeking a high calibre Sales Professional to develop and increase its customer base throughout Southern Ireland. The ideal candidate will have a demonstrable track record in the sale of disc based business systems and will possess the drive and ambition necessary to succeed in a competitive and fast growing environment. A knowledge of the Irish Market would be very useful. Leadership qualities and organisational skills combined with the ability to motivate people will lead to managerial status for the right person in the short term.

The company offers an attractive remuneration package which includes a basic salary of £7,000, a minimum earnings guarantee and a 21p per mile car allowance. Realistic targets will give an on quota income of around £16,000 and relocation expenses are payable in appropriate circumstances.

Please write or telephone Gerald Delamere at the Dublin office (0001 78 95 77).

QUOTA EARNINGS — £16,000

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DUBLIN

£5,000-£8,000

Our client is a major Irish accounting and management consultancy practice, employing over 500 people and providing a comprehensive range of professional services to Irish and International companies.

You will be required to work on various outside clients' projects as well as the additional development requirements of our own in-house facility.

If you have at least 18 months' experience of RPGII our client will be very interested, but if you have five years plus they still want you and will pay more!

Successful candidates will be offered whatever their experience warrants and a future working to high professional standards in a company committed to individual programmes for training and development.

Please write or telephone Gerald Delamere at the Dublin office (0001 78 95 77).
CWD/2

SYSTEMS ANALYST

c. £8,500

IRISH MIDLANDS

Our client, a manufacturing company with an established ultra modern plant accessible to Dublin, requires an experienced Systems Analyst to join a young team.

The person appointed will be assistant to the DPM. The opportunity exists for someone to look into other development areas, e.g. the use of micro and process control systems. In addition to the current ones other manufacturing systems have to be developed.

The successful candidate will have at least six years in DP with a minimum of three in systems design/analysis. Manufacturing experience is very desirable and a programming background would be helpful.

The company offers this outstanding opportunity to secure very interesting work. In addition to a competitive salary and excellent working conditions in a new installation there is a life assurance and pension scheme. Assistance will be given with relocation costs where applicable.

Please write or telephone Gerald Delamere at the Dublin office (0001 78 95 77).
CWD/3

ANALYSTS and PROGRAMMERS

SOUTHERN IRELAND

£5,000-£11,000

In addition to the above positions we have many clients all over Ireland who are seeking high calibre computer men and women. Our clients, both Manufacturers and Users, want good commercial systems experience and applicants with manufacturing experience will be particularly welcome as new foreign companies are coming to Ireland and setting up new facilities every month. Prospects are good, really good, with start-up positions available for people who don't want to be doing the same thing year after year. If you genuinely want to work in Dublin or Ireland contact GERALD DELAMERE at 0001 78 95 77 or write to him at 24 Lower Leeson Street, Dublin 2.

CWD/4



Central Computing Consultants

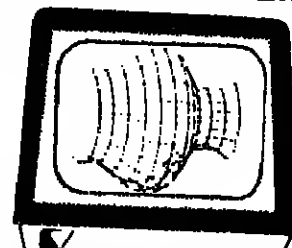
LONDON: 8A Lower Grosvenor Place, London SW1W 0EN, England. Telephone: 01-834 7105. Telex: 918582

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"Computervision Europe, with operations in 10 European countries, is part of the Computervision Corporation, a major U.S. company, which is the world leader in the design and manufacture of Computer Graphics Turn Key Systems - one of the fastest growing high technology industries. Computervision's Computer-Aided Design/Computer Aided Manufacturing (CAD/CAM) systems, and comprehensive support services, are helping customers to increase productivity worldwide. We are a young, dynamic, highly profitable organisation currently embarked upon a major expansion programme to satisfy market demand."

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Productivity... by Design

Field Service Engineers and Application Engineers

up to £8500 + 2-litre car

* SOUTH ENGLAND * MIDLANDS * SCOTLAND

Field Service Engineers

We currently have several opportunities throughout SOUTHERN ENGLAND, THE MIDLANDS and SCOTLAND for Field Service Engineers, with a good knowledge of electronics and 2/3 years' field experience in the computer industry.

The successful candidates will be involved with the installation, commissioning and on-going support activities to their respective customer base.

Experience of mini-computer systems and associated peripherals is required, although previous experience of CAD systems is not essential as full product training will be provided.

Salaries will be up to £8,500 p.a. plus profit sharing bonus, and the associated benefits package will include free BUPA and life assurance cover. Assistance will be given with relocation expenses, where appropriate.

Application Engineers

We currently have opportunities in THE MIDLANDS and SOUTHERN ENGLAND for Application Engineers with experience of mechanical design/numerical control disciplines.

The successful candidates will provide some training and on-going application support services to both new and existing customers for our CAD/CAM systems.

A qualification of degree level is required together with several years experience of their respective discipline. A background in the use of engineering software or CAD/CAM will be an advantage.

We shall be commencing interviews for these positions from 16th January 1980 so if you are interested please contact Mike Fuller, Customer Support Manager, or Bob Powell, Administration Manager, Computervision Limited, Penn Street Village, Amersham, Bucks. Tel: High Wycombe (0494) 714771.



Cullinane
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Central London

£7-10k + Car

IBM or Database

The Cullinane Corporation of America is known throughout the industry as the market leader in Management Information Systems based on Database Software.

As part of their U.K. and European expansion programme they are seeking to recruit a number of people to support and develop their existing customer base.

Ideal candidates will have a good all round knowledge of IBM systems, experience of database management techniques and should have worked in a support environment. However the company appreciates that the ideal is not always attainable and is interested in meeting those who possess any of the attributes outlined above and who have a desire to develop the others.

To those with genuine technical and personal skills, and an interest in database techniques this is a real opportunity to join what is probably the most respected company in the software products industry.

For full details telephone Kevin McCourt or write enclosing a Curriculum Vitae quoting reference KTM.3002.



Lloyd Chapman
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Project Control at IBM CICS installations. (Bill)

RPG11 PROG/ANALYST LONDON to £6500
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Develop new systems at well-known company (Bill)

IBM OS OPERATORS WEST OF LONDON to £7000
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All levels of PL/1 Programmers needed for the CICS installation. (Bill)

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TAYLOR & WARD

Cobol programmers

International Banking
London based with overseas travel

We are seeking programmers with at least a year's COBOL experience to support a major International Banking System, which will initially be installed in two European locations on Hewlett Packard equipment. Experience of working on mini-computers is advantageous but not essential.

The positions are based in London but involve working for short periods in the bank's European Offices. There are also likely to be assignments to the Far East.

An excellent benefits package includes low-interest mortgage facilities, non-contributory pension, medical and life insurance plans and an annual bonus.

Please write in the first instance to Mr William E. Swanson giving a brief resume of your experience and career to date.
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33 Lombard Street, London EC3P 3BH

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DENTAL ESTIMATES BOARD EASTBOURNE

COMPUTER OPERATIONS MANAGER

The Dental Estimates Board operate an ICL 1904S tape-disc machine and require an Operations Manager, responsible to the Computer Manager.

Applicants should have experience of 1900 operations management, including a good working knowledge of GEORGE operating systems.

Starting salary will be in the range £7,032-£8,551 per annum.

Application form, to be returned by 30th January, 1980, and further details may be obtained from the Clerk to the Board, Dental Estimates Board, Eastbourne, East Sussex, BN20 8AD (Telephone Eastbourne (0323) 25552, Extension 33).

Gloucester

Assistant Operations Manager

Salary up to £6936 p.a.

The County Council has installed a large Honeywell level 60 system which will service six level 6 mini computers online in the District Council's plus a network of terminals. Applicants should have relevant experience for working in this demanding environment.

For details ring Judy Hobbs - Gloucester 21444 Ext 520 or with Computer Services Manager, Gloucestershire County Council, Quayside Wing, Shire Hall, Gloucester GL1 2TJ.

Software Administration Manager

North London

circa £10,000

Our client, a market leader in the supply of advanced hardware and software systems to the colour printing and graphic arts industries, wishes to recruit an experienced person into the new position of Software Administration Manager.

The person appointed will have a proven record as a manager, or project leader, in the computer industry which will have been reached via programming at a detailed implementation level. He/She will have a talent for organization and administration.

The position requires new procedures and standards to be implemented which will result in improved efficiency in the collection, storage, documentation and update of software produced by a number of engineering project teams. Prime requirements are self-motivation and the ability to achieve results with the co-operation of a number of managers and chief engineers.

The salary offered is meant to reflect the importance of the position within the Company. In addition the Company offers a bonus scheme, 5% contributory pension, flextime, season ticket loan scheme and relocation expenses where appropriate.

If you believe you have a contribution to make in this area and would like to be considered please send your cv to Terry Harvey or contact him for an application form.



Terry Harvey Recruitment

Executive and Computing Personnel Consultants
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£5,000 to £7,000 inc. N. MIDOX.
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CW2/1

OPERATORS

c. £5,000 inc. GERK2.
A large commercial company situated in an attractive Berkshire town requires operators for their 1900 GII + installation. They work on a three-shift system. Benefits include CPS, Subs, car, 4 wk's hol, and discount on company products.
CW2/3

BASIC PROGRAMMERS

S.E. ENGLAND £5,000-£9,500
I bet you never know how popular you were! We now have over 40 registered vacancies for BASIC and BASIC + programmers. Opportunities exist in the City, SE1, Bletchford, Chatham, Amersham, Kingston, Plims and Maidenhead for people with 1½ years' or more experience. Career growth is assured and most offer very attractive perks.
CW2/5

JUNIOR PROGRAMMERS

£4,500 to £5,500 S.E. ENGLAND
You have only 1 year's commercial experience? Then you are in great demand. We have a large selection of first-rate companies who need people like you. Some offer mortgage assistance to the right candidates after a short period with them.
CW2/2

IBM OPERATOR

c. £5,000 RICHMOND
If you have 2-3 years' 370 QDS experience with CICS, don't hesitate to apply for this excellent position. The above international company has a 4331 installation and a T.P. network. You work for 3 extended days per week. - nice! Usual company benefits.
CW2/4

RPG II VACANCIES

LONDON & HOME COUNTIES £5,000-£9,500
If European travel, a car and mortgage assistance interest you then consider our current list of 15 unique vacancies for RPG II programmers and analyst programmers should appeal to you. Locations are the City, N.W., W. and N. London, High Wycombe and Crawley, and many of the firms have the latest IBM 34 and 38 installations. CW/8

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Urgently required. Knowledge of Taskmaster and/or Adabas desirable. West Country location. 6 month contract. CE250

ANALYST PROGRAMMERS

IBM IMS DB/DC experience. Order Entry System. Midlands location. 6 month contract. Immediate start. CE260

PROGRAMMERS

IBM 370 OS IMS COBOL. "Copics" essential. Stock control. Midlands location. Immediate start. CE260

IBM 370 COBOL PROGRAMMERS

Some development involved. Midlands location. 12 month contract. Immediate start. CE250

ANALYST PROGRAMMERS

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ANALYST PROGRAMMERS

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PROGRAMMERS

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PROGRAMMERS

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IBM COBOL PROGRAMMERS

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7502 TPL

Terminal experience required by our Northern based client. Commercial applications. three month contract. Immediate start. CE260

PROGRAMMERS

UNIVAC 1100 COBOL and/or ASSEMBLER

Various applications. N.W. and Midlands locations. Long/short term contracts. CE260

SENIOR ANALYST PROGRAMMER IMS DB and/or DC TOGETHER

With PLI essential. Order Processing. Midlands location. 6 month contract. Immediate start. CE260

HW 66 COBOL PROGRAMMERS

IDS/TDS experience desirable. Commercial applications. Midlands location. Immediate start. CE260

For further information on these and other contracts telephone:

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We could go on and list many more of the prime attributes of your next job but we feel that if you are already a Systems Programmer you will probably know that ICL can more than meet your requirements.

At Bracknell we are involved in the development of a wide range of projects that will probably surprise you in their diversity and novelty. We need to recruit more people to help us to continue with our work and will be holding two open evenings, as detailed below.

The experience we are looking for will certainly be well rewarded (the salaries for these vacancies can go as high as £12,000).

If you are already in system software or have good applications experience, you should certainly give us the opportunity of meeting you.

If you are an engineer with a bias towards micro-programming techniques, we would also like to talk to you. We look forward to seeing you!

Informal Interviews

LONDON
Tues. 15th January
Royal Garden Hotel,
High Street,
Kensington, London W.8
Anytime between 5.00pm-9.00pm

BRACKNELL
Wed. 16th January
ICL,
Lovelace Road,
Bracknell, Berks.
Anytime between 5.00pm-9.00pm

If you can't make either of these dates, then please ring Rob Wilson on Bracknell (0344) 24842, Ext. 2750 to arrange an alternative time. Or if you prefer, simply post the FREEPOST coupon.

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(A.P.5 — £5,220-£5,547 —
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The authority have an I.C.L. 1901T (48K) with 2 x EDS 80 and 4 x 40K C/S. Magnetic Tapes: a V.D.U. is also in use.

Applicants should have had at least three years' COBOL experience. A knowledge of PLAN and DRIVER would be an added advantage.

The successful candidate will be required to assist in program maintenance, conversion and development.

Benefits include flexible working hours, payment of removal expenses, separation allowance and disturbance grant in appropriate cases, staff restaurant facilities.

Application forms and further information may be obtained from the Personnel Officer, Town Hall, Chester or Tel: (0244) 40144 Ext. 2136. Closing date: 18th January, 1980.



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Uxbridge — Middlesex
Circa £6,500 — ICL COBOL

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an international institution in Basel
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for its VM/370-148 computer. The right person will have 2-3 years' experience as a DOS computer operator and a good working knowledge of English. One year contract with possibility of extension.

Please apply in writing, enclosing curriculum vitae, copies of testimonials and recent photograph to: Personnel Section, Bank for International Settlements, Postfach 202, 4002 Basle, Switzerland.

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IBM Programmer
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c£400
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Germany

COBOL Programmers
IBM pref. DB & German useful
IBM Assembler Programmer
CICS experience preferred
PL1 Analyst Programmers
Assembler, PL1. German knowledge and
stock applications exp. ideal
Assembler Analyst Programmer
Some German reqd. for text editing,
processing systems development
Avionics A.T.E. Systems
Hardware/Software background reqd
BASIC/ATLAS exp. ideal
c£390
c£390
£450
c£390
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Italy

Software Development/Testing
Operating Systems & Communications
software for IBM, COSMOS, PAC/
PAL ideal but not essential. Any
Comms exp. will be considered
£neg

Arizona — USA

Telephony Systems
Major devel project Analyst
Programmers reqd. with good
telephony exp. e.g. Syst X, T, E4, etc
£neg

Paris

Univac 80/30 Programmer
COBOL assem. Database R. mths
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IBM Programmers
Major IBM installation with DB/DC
Exp. should incl. COBOL, PL1 & IMS
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ICL,
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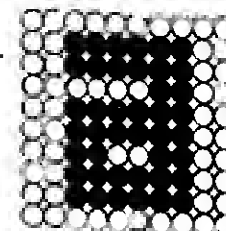
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Programmer/Analyst

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One year contract with possibility of extension. Please apply in writing, enclosing curriculum vitae, copies of testimonials and recent photograph to the Personnel Section, Bank for International Settlements, Postfach 252, 4002 Basel, Switzerland.

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recovery and back-up facilities.
IBM Programmer
M4 & COBOL essen. CICS prel
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COBOL Programmers
IBM prel. DB & German useful
IBM Assembler Programmer
CICS experience preferred
PL1 Analyst Programmers
Assembler, PL1, German knowledge and
stock applications exp. ideal
Assembler Analyst Programmer
Some German reqd. for Text editing,
processing systems development
Avionics A.T.E. Systems
Hardware/Software background reqd.
BASIC/ATLAS exp. ideal.

c£390

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Software Development/Testing
Operating Systems & Communications
software for TC800 COSMOS, PAC/
PAL ideal but not essential. Any
Comms exp. will be considered

£neg

Arizona — USA

Telephony Systems
Major devel project. Analyst
Programmers reqd. with good
telephony exp. e.g. Syst 7, TXE4, etc.

£neg

Paris

Univac 80/30 Programmer
COBOL essen. Duration 6 mths.

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IBM Programmers
Major IBM installation with DB/DC
Exp. should incl. COBOL, PL1 & IMS.

c£450

UK — South East

PL1/IMS Programmers
Start dates through to April.
Honeywell 182 COBOL
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Simulation Systems
Devel of Min based RT Systems
Radar or similar exp. reqd.
POP 11 Ohol Programmers
Early availability preferred

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c£280

c£270

c£270

Applications for other positions
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Berkhamstead 2289 (day/evening)

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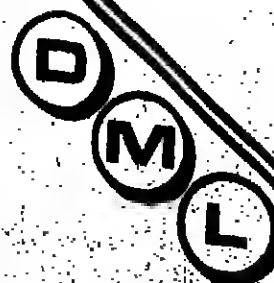
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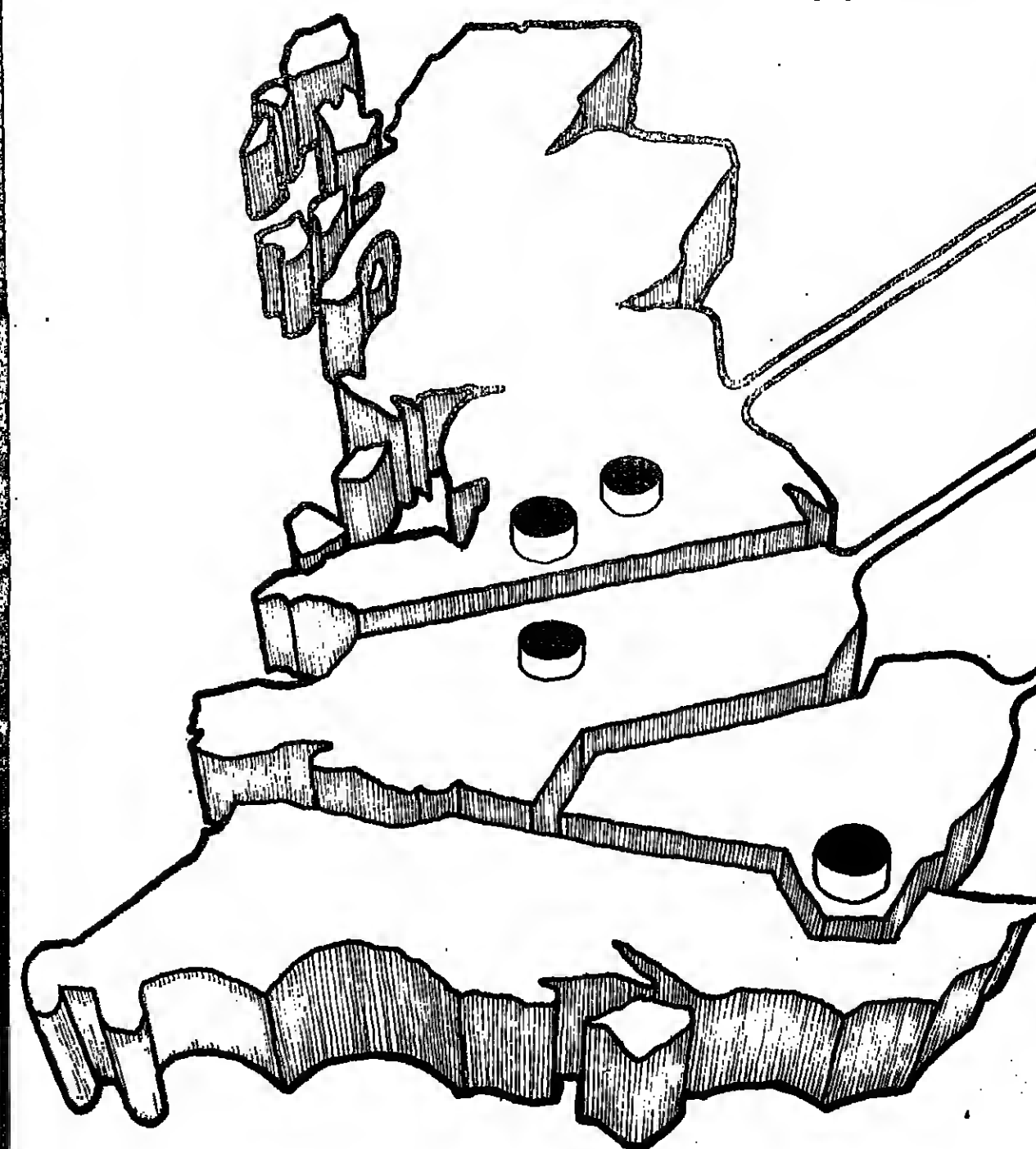
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GII-HB set to oust ICL at Space Agency

ICL LOOKS likely to lose out to GII-HB on contracts from the European Space Agency to replace two ICL System 4/72s. Software house Marcol of London is set to win a substantial consolation prize for the UK computer industry in the shape of a £250,000 conversion contract.

One System 4 is a general data processing machine at ESA's Space Research and Technology Centre in Noordwijk, Holland. The other is at Darmstadt, West Germany, where it acts as a back-end batch processing machine taking satellite data collected by Siemens 330 minicomputers and a CII 10 070, a machine based on the Xerox Sigma 7.

ICL, bid large 2900s (above 2900) for the contracts, and told Computer Weekly that it had not been notified it had lost.

"However," said a spokesman, "we would not be too surprised to lose this one because ICL has over 70% of ESA's mainframe business and the Agency is likely to want to spread it more evenly between us, CII-HB and Siemens." Problems with the 2900s at Darmstadt, although now resolved, will not have helped ICL's case.

CII-HB would not comment.

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Box number replies should be addressed to:

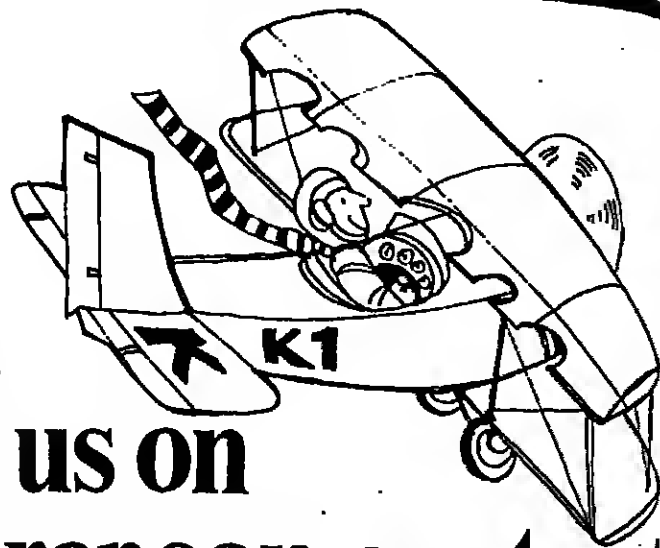
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Applications should be made in writing or by telephone, giving brief career details to: Valentine West, Director of Personnel,

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CPA have an NCR V8555M mainframe, and ideally, though not necessarily, candidates will be experienced on NCR computers: knowledge of on-line systems will be useful, and of COBOL essential.

Please write, giving full details of age, marital status, education, experience and current salary to: Ian Thomas, Computer Patent Annuities, Union House, Union Street, St. Helier, Jersey, C.I.

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North London

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Targa

PROGRAMMER/ANALYST £8000 C. LONDON

A large Manufacturing Company is looking for a Programmer/Analyst to join their small systems team. The successful applicant will have at least 2 years' COBOL experience with a good systems background.

The job involves deputising for the Data Processing Manager therefore Management skills are as important as technical abilities. Due to rapid expansion the client is upgrading from Burroughs therefore experience with applications from any Hardware background is welcomed.

IBM OS
3 shift working in Middlessex. Multi machine end Hardware environment.

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COBOL PROGRAMMERS £6500 C. LONDON

A large Financial organisation is currently seeking Programmers at all levels, the salary indicated is for 2 years' COBOL experience. The present Hardware is an ICL 1900 but a 2960 is in the process of being installed, this therefore makes it an exciting time for anyone joining the company at the moment. Although the Hardware is ICL this does NOT exclude applicants with COBOL on other Mainframes.

The company offers free lunches, season ticket loans, annual bonus, flexitime and an excellent Mortgage subsidy.

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£7000+

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ICL 2956

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An International Banking Group require a Programmer to complement their last developing O.P. department. The current Hardware is PDP 11/70's running one of the most advanced and sophisticated Banking Systems. The minimum requirement for this position is 12 months BASIC programming, preference will be shown to applicants with a Financial/Banking background but this is NOT essential.

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£5000

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The end up and each 15-20-30-40-50-60-70-80-90-100-110-120-130-140-150-160-170-180-190-200-210-220-230-240-250-260-270-280-290-300-310-320-330-340-350-360-370-380-390-400-410-420-430-440-450-460-470-480-490-500-510-520-530-540-550-560-570-580-590-600-610-620-630-640-650-660-670-680-690-700-710-720-730-740-750-760-770-780-790-800-810-820-830-840-850-860-870-880-890-900-910-920-930-940-950-960-970-980-990-1000-1010-1020-1030-1040-1050-1060-1070-1080-1090-1100-1110-1120-1130-1140-1150-1160-1170-1180-1190-1200-1210-1220-1230-1240-1250-1260-1270-1280-1290-1300-1310-1320-1330-1340-1350-1360-1370-1380-1390-1400-1410-1420-1430-1440-1450-1460-1470-1480-1490-1500-1510-1520-1530-1540-1550-1560-1570-1580-1590-1600-1610-1620-1630-1640-1650-1660-1670-1680-1690-1700-1710-1720-1730-1740-1750-1760-1770-1780-1790-1800-1810-1820-1830-1840-1850-1860-1870-1880-1890-1900-1910-1920-1930-1940-1950-1960-1970-1980-1990-2000-2010-2020-2030-2040-2050-2060-2070-2080-2090-2100-2110-2120-2130-2140-2150-2160-2170-2180-2190-2200-2210-2220-2230-2240-2250-2260-2270-2280-2290-2300-2310-2320-2330-2340-2350-2360-2370-2380-2390-2400-2410-2420-2430-2440-2450-2460-2470-2480-2490-2500-2510-2520-2530-2540-2550-2560-2570-2580-2590-2600-2610-2620-2630-2640-2650-2660-2670-2680-2690-2700-2710-2720-2730-2740-2750-2760-2770-2780-2790-2800-2810-2820-2830-2840-2850-2860-2870-2880-2890-2900-2910-2920-2930-2940-2950-2960-2970-2980-2990-3000-3010-3020-3030-3040-3050-3060-3070-3080-3090-3100-3110-3120-3130-3140-3150-3160-3170-3180-3190-3200-3210-3220-3230-3240-3250-3260-3270-3280-3290-3300-3310-3320-3330-3340-3350-3360-3370-3380-3390-3400-3410-3420-3430-3440-3450-3460-3470-3480-3490-3500-3510-3520-3530-3540-3550-3560-3570-3580-3590-3600-3610-3620-3630-3640-3650-3660-3670-3680-3690-3700-3710-3720-3730-3740-3750-3760-3770-3780-3790-3800-3810-3820-3830-3840-3850-3860-3870-3880-3890-3900-3910-3920-3930-3940-3950-3960-3970-3980-3990-4000-4010-4020-4030-4040-4050-4060-4070-4080-4090-4100-4110-4120-4130-4140-4150-4160-4170-4180-4190-4200-4210-4220-4230-4240-4250-4260-4270-4280-4290-4300-4310-4320-4330-4340-4350-4360-4370-4380-4390-4400-4410-4420-4430-4440-4450-4460-4470-4480-4490-4500-4510-4520-4530-4540-4550-4560-4570-4580-4590-4600-4610-4620-4630-4640-4650-4660-4670-4680-4690-4700-4710-4720-4730-4740-4750-4760-4770-4780-4790-4800-4810-4820-4830-4840-4850-4860-4870-4880-4890-4900-4910-4920-4930-4940-4950-4960-4970-4980-4990-5000-5010-5020-5030-5040-5050-5060-5070-5080-5090-5100-5110-5120-5130-5140-5150-5160-5170-5180-5190-5200-5210-5220-5230-5240-5250-5260-5270-5280-5290-5300-5310-5320-5330-5340-5350-5360-5370-5380-5390-5400-5410-5420-5430-5440-5450-5460-5470-5480-5490-5500-5510-5520-5530-5540-5550-5560-5570-5580-5590-5600-5610-5620-5630-5640-5650-5660-5670-5680-5690-5700-5710-5720-5730-5740-5750-5760-5770-5780-5790-5800-5810-5820-5830-5840-5850-5860-5870-5880-5890-5900-5910-5920-5930-5940-5950-5960-5970-5980-5990-6000-6010-6020-6030-6040-6050-6060-6070-6080-6090-6100-6110-6120-6130-6140-6150-6160-6170-6180-6190-6200-6210-6220-6230-6240-6250-6260-6270-6280-6290-6300-6310-6320-6330-6340-6350-6360-6370-6380-6390-6400-6410-6420-6430-6440-6450-6460-6470-6480-6490-6500-6510-6520-6530-6540-6550-6560-6570-6580-6590-6600-6610-6620-6630-6640-6650-6660-6670-6680-6690-6700-6710-6720-6730-6740-6750-6760-6770-6780-6790-6800-6810-6820-6830-6840-6850-6860-6870-6880-6890-6900-6910-6920-6930-6940-6950-6960-6970-6980-6990-7000-7010-7020-7030-7040-7050-7060-7070-7080-7090-7100-7110-7120-7130-7140-7150-7160-7170-7180-7190-7200-7210-7220-7230-7240-7250-7260-7270-7280-7290-7300-7310-7320-7330-7340-7350-7360-7370-7380-7390-7400-7410-7420-7430-7440-7450-7460-7470-7480-7490-7500-7510-7520-7530-7540-7550-7560-7570-7580-7590-7600-7610-7620-7630-7640-7650-7660-7670-7680-7690-7700-7710-7720-7730-7740-7750-7760-7770-7780-7790-7800-7810-7820-7830-7840-7850-7860-7870-7880-7890-7900-7910-7920-7930-7940-7950-7960-7970-7980-7990-8000-8010-8020-8030-8040-8050-8060-8070-8080-8090-8100-8110-8120-8130-8140-8150-8160-8170-8180-8190-8200-8210-8220-8230-8240-8250-8260-8270-8280-8290-8300-8310-8320-8330-8340-8350-8360-8370-8380-8390-8400-8410-8420-8430-8440-8450-8460-8470-8480-8490-8500-8510-8520-8530-8540-8550-8560-8570-8580-8590-8600-8610-8620-8630-8640-8650-8660-8670-8680-8690-8700-8710-8720-8730-8740-8750-8760-8770-8780-8790-8800-8810-8820-8830-8840-8850-8860-8870-8880-8890-8900-8910-8920-8930-8940-8950-8960-8970-8980-8990-9000-9010-9020-9030-9040-9050-9060-9070-9080-9090-9100-9110-9120-9130-9140-9150-9160-9170-9180-9190-9200-9210-9220-9230-9240-9250-9260-9270-9280-9290-9300-9310-9320-9330-9340-9350-9360-9370-9380-9390-9400-9410-9420-9430-9440-9450-9460-9470-9480-9490-9500-9510-9520-9530-9540-9550-9560-9570-9580-9590-9600-9610-9620-9630-9640-9650-9660-9670-9680-9690-9700-9710-9720-9730-9740-9750-9760-9770-9780-9790-9800-9810-9820-9830-9840-9850-9860-9870-9880-9890-9900-9910-9920-9930-9940-9950-9960-9970-9980-9990-10000-10010-10020-10030-10040-10050-10060-10070-10080-10090-10100-10110-10120-10130-10140-10150-10160-10170-10180-10190-10200-10210-10220-10230-10240-10250-10260-10270-10280-10290-10300-10310-10320-10330-10340-10350-10360-10370-10380-10390-10400-10410-10420-10430-10440-10450-10460-10470-10480-10490-10500-10510-10520-10530-10540-10550-10560-10570-10580-10590-10600-10610-10620-10630-10640-10650-10660-10670-10680-10690-10700-10710-10720-10730-10740-10750-10760-10770-10780-10790-10800-10810-10820-10830-10840-10850-10860-10870-10880-10890-10900-10910-10920-10930-10940-10950-10960-10970-10980-10990-11000-11010-11020-11030-11040-11050-11060-11070-11080-11090-11100-11110-11120-11130-11140-11150-11160-11170-11180-11190-11200-11210-11220-11230-11240-11250-11260-11270-11280-11290-11300-11310-11320-11330-11340-11350-11360-11370-11380-11390-11400-11410-11420-11430-11440-11450-11460-11470-11480-11490-11500-11510-11520-11530-11540-11550-11560-11570-11580-11590-11600-11610-11620-11630-11640-11650-11660-11670-11680-11690-11700-11710-11720-11730-11740-11750-11760-11770-11780-11790-11800-11810-11820-11830-11840-11850-11860-11870-11880-11890-11900-11910-11920-11930-11940-11950-11960-11970-11980-11990-12000-12010-12020-12030-12040-12050-12060-12070-12080-12090-12100-12110-12120-12130-12140-12150-12160-12170-12180-12190-12200-12210-12220-12230-12240-12250-12260-12270-12280-12290-12300-12310-12320-12330-12340-12350-12360-12370-12380-12390-12400-12410-12420-12430-12440-12450-12460-12470-12480-12490-12500-12510-12520-12530-12540-12550-12560-12570-12580-12590-12600-12610-12620-12630-12640-12650-12660-12670-12680-12690-12700-12710-12720-12730-12740-12750-12760-12770-12780-12790-12800-12810-12820-12830-12840-12850-12860-12870-12880-12890-12900-12910-12920-12930-12940-12950-12960-12970-12980-12990-13000-13010-13020-13030-13040-13050-13060-13070-13080-13090-13100-13110-13120-13130-13140-13150-13160-13170-13180-13190-13200-13210-13220-13230-13240-13250-13260-13270-13280-13290-13300-13310-13320-13330-13340-13350-13360-13370-13380-13390-13400-13410-13420-13430-13440-13450-13460-13470-13480-13490-13500-13510-13520-13530-13540-13550-13560-13570-13580-13590-13600-13610-13620-13630-13640-13650-13660-13670-13680-13690-13700-13710-13720-13730-13740-13750-13760-13770-13780-13790-13800-13810-13820-13830-13840-13850-13860-13870-13880-13890-13900-13910-13920-13930-13940-13950-13960-13970-13980-13990-14000-14010-14020-14030-14040-14050-14060-14070-14080-14090-14100-14110-14120-14130-14140-14150-14160-14170-14180-14190-14200-14210-14220-14230-14240-14250-14260-14270-14280-14290-14300-14310-14320-14330-14340-14350-14360-14370-14380-14390-14400-14410-14420-14430-14440-14450-14460-14470-14480-14490-14500-14510-14520-14530-14540-14550-14560-14570-14580-14590-14600-14610-14620-14630-14640-14650-14660-14670-14680-14690-14700-14710-14720-14730-14740-14750-14760-14770-14780-14790-14800-14810-14820-14830-14840-14850-14860-14870-14880-14890-14900-14910-14920-14930-14940-14950-14960-14970-14980-14990-15000-15010-15020-15030-15040-15050-15060-15070-15080-15090-15100-15110-15120-15130-15140-15150-15160-15170-15180-15190-15200-15210-15220-15230-15240-15250-15260-15270-15280-15290-15300-15310-15320-15330-15340-15350-15360-15370-15380-15390-15400-15410-15420-15430-15440-15450-15460-15470-15480-15490-15500-15510-15520-15530-15540-15550-15560-15570-15580-15590-15600-15610-15620-15630-15640-15650-15660-15670-15680-15690-15700-15710-15720-15730-15740-15750-15760-15770-15780-15790-15800-15810-15820-15830-15840-15850-15860-15870-15880-15890-15900-15910-15920-15930-15940-15950-15960-15970-15980-15990-16000-16010-16020-16030-16040-16050-16060-16070-16080-16090-16100-16110-16120-16130-16140-16150-16160-16170-16180-16190-16200-16210-16220-16230-16240-16250-16260-16270-16280-16290-16300-16310-16320-16330-16340-16350-16360-16370-16380-16390-16400-16410-16420-16430-16440-16450-16460-16470-16480-16490-16500-16510-16520-16530-16540-16550-16560-16570-16580-16590-16600-16610-16620-16630-16640-16650-16660-16670-16680-16690-16700-16710-16720-16730-16740-16750-16760-16770-16780-16790-16800-16810-16820-16830-16840-16850-16860-16870-16880-16890-16900-16910-16920-16930-16940-16950-16960-16970-16980-16990-17000-17010-17020-17030-17040-17050-17060-17070-17080-17090-17100-17110-17120-17130-17140-17150-17160-17170-17180-17190-17200-17210-17220-17230-17240-17250-17260-17270-17280-17290-17300-17310-17320-17330-17340-17350-17360-17370-17380-17390-17400-17410-17420-17430-17440-17450-17460-17470-17480-17490-17500-17510-17520-17530-17540-17550-17560-17570-17580-17590-17600-17610-17620-17630-17640-17650-17660-17670-17680-17690-17700-17710-17720-17730-17740-17750-17760-17

OPERATIONS STAFF

Senior Operator £5,500 neg

Required by large Midlands site. A minimum of two years in Operations, preferably on 370 mainframe, operating under OS/VS 1. The company offers well defined career paths for ambitious operators. Three shifts. Ref 2662.

Operator £5,200 neg

For prestigious West End site. Two or more years' experience on large IBM mainframes. Candidates should have OS/VS 1 or MVS experience. The position is suitable for a career-minded operator who wants to earn rapid promotion. Three shifts. Ref 3013.

Shift Leader £6,000 neg

For friendly West End installation. A minimum of four years' operations experience is required. Candidates should be familiar with OS, POWER and ORASP operating systems. The position is suitable for candidates seeking an opening into management. Two shifts. Ref 2620.

Operator £5,300 neg

For large Nonhants site. Candidates should have a minimum of eighteen months' operations experience on IBM equipment, using OS/VS POWER CICS experience would be useful. Candidates will be required to do a programming aptitude test. Three shifts. Ref 2699.

Operator £4,500 p.a.

For friendly city site. Two or more years' operations experience, preferably on the I 900 range operating under Gao II. Three shifts. Ref. 2991.

Shift Leader £5,500

Urgently required by a South London company. A minimum of three years' operations experience, preferably on IBM equipment, operating under OS/VS POWER. CICS knowledge would be an advantage. A good opportunity for a young, ambitious operator seeking promotion. Three shifts. Ref. 2885.



01-493 7761

RPG II PROGRAMMER

SYSTEM/34 — £6,000+

We are part of an international organisation rapidly expanding our U.K. cosmetics and pharmaceutical business.

We have recently replaced our S/3-B by a large IBM system/34 and wish to recruit an RPG II Programmer. This is a new position in our expanding Data Processing Department, and the person appointed will work on major projects including on-line applications.

Applicants must have a minimum of 2 years' RPG II programming experience (knowledge of system/34 would be an advantage).

Please telephone or write for an application form to:

Mrs. J. Humby, Personnel Administrator
PLOUGH (U.K.) LTD.
Ponarth Street, London SE15 1TR
Tel. 01-639 4363

or if you want to know more about the job, phone Mr. F. Gevork, Data Processing Manager.

An Advanced and Intensive Course on COMPILING TECHNIQUES

at
BRUNEL UNIVERSITY, Uxbridge
on live consecutive Tuesdays, April 22-May 20, 1980
Lecturer: Prof. F. R. A. Hopcroft, Head of Computing Division,
Philippine Laboratories
Author of "Computing Techniques"

Further details from:
The Secretary
Computer Science Department
Brunel University
Uxbridge, UB8 3PH

Computing in the Construction Industry

The advances of technology in the construction industry are placing increasing importance and demand on the use of computers.

The Computer Application Department of Taylor Woodrow Construction provides a computer service for engineers throughout the Taylor Woodrow Group. The demands on such a service are wide ranging covering the various engineering disciplines and embrace design planning and management information.

Applications are invited from graduates in computer science or from engineering graduates who possess a desire to develop their computer skills. Successful applicants will be involved in the maintenance of an efficient computer system, as well as the development of software associated with graphics and information processes.

Attractive salaries will be accompanied by the kind of conditions to be expected from a large international organisation. For more information and an application form please contact David Nelson (Ref. CAG), Personnel Department, Taylor Woodrow Construction Limited, 345 Ruislip Road, Southall, Middlesex UB1 2QX. Tel: 01-575 4894.

Construction

TAYLOR WOODROW

SYSTEMS ANALYST/ PROGRAMMER Construction Industry West Midlands

Expansion of the computer department within this successful Construction Group, with its Head Office situated in rural Warwickshire, has given rise to the requirement for a Systems Analyst/Programmer.

A totally integrated accounting system has been developed and is currently running on an IBM System/34. Computerisation of various management control systems is the next phase in the development plan, and the person envisaged will be at such a calibre as to be able to take complete control of individual projects.

At least five years' experience in systems analysis together with a detailed knowledge of RPG II is seen as a requirement, experience.

A salary commensurate with the responsibilities to be undertaken is offered, together with a Company car. Other fringe benefits include a contributory pension scheme and life BUPA. Consideration will be given to relocation expenses if applicable.

Apply in the last instance, giving brief details of career to date, to:

P. Robbins, Esq., Personnel Manager
Espley Tyas Group Limited
Park Hall, Galford Priory
Evesham, Worcs, WR11 8SQ

ET ESLEY-TYAS

EXPERIENCED Data Controller

To join a team in the control and checking of data processed on our computer. Applicants must be educated to 'O' level standard.

We can offer a starting salary of £4202 with additional overtime payments, when required. A two-shift system is in operation, Monday to Friday, 08.00 hours to 23.00 hours.

The installation is in a modern building with excellent working conditions. A free car park and subsidised canteen are available.

If you are interested, please telephone 01-735 4861 for an application form.



Installation Operations Manager
South East Thames Regional
Health Authority
Regional Computer Centre
Beckton Drive
LONDON SE11 4TE



SYSTEMS ANALYST/DESIGNER (TWO-YEAR FIXED TERM APPOINTMENT) (Reedvertisement) GRADE VIII

£6,606-£7,098 p.a. plus £10 per month "on account" pending result of comparability study

Applications are invited for the above post which is a post appointment with the Peterlee and Aycliffe Development Corporations.

The successful applicant will have a high level of responsibility as a central role reporting to the Managing Director. Duties include: advising on computer applications in all departments, providing technical support, maintaining and developing computer packages and an efficient support system.

Applicants should preferably be graduates in computer studies, with a high technology background and proven statistical ability. Ideally they should have experience of both small and large computer systems and time sharing finance. The ability to program in Fortran IV and/or RPGI and/or with people at all levels is essential.

Attractive fringe benefits, payable in appropriate cases, may include: rental housing allowance, reasonable removal expenses, legal and estate agent's fees, applicable to house sale and purchase, and a sitting-in allowance and an essential car user allowance.

The appointment is for two years and the successful applicant will be required to pass a probationary period. Previous applicants need not apply.

Application forms may be obtained from the undersigned or by telephoning Su Taylor on 01-575 4894.

Should be returned not later than 25th January, 1980 to:

F. C. SIMPSON
Director of Administration and Finance
Lee House, Yorden Way, Peterlee, Co. Durham
Telephone: Peterlee (0733) 863366

HAMPSHIRE

EASTLEIGH COLLEGE OF
FURTHER EDUCATION
Chesnut Avenue
Eastleigh SO5 5HT

LECTURER

GRADE II IN
COMPUTER STUDIES
to commence as soon as possible.

Required to teach Computer Studies, Computer Science and Data Processing to a range of full- and part-time courses preparing for BSC General and Technical Awards and GCE A Level and to act as manager of the College's Computer Centre.

Applicants should hold appropriate qualifications and/or experience in computing. This is an opportunity for a computer professional to enter full-time teaching in an expanding area of work.

Salary: £4470-£7148 p.a. + £72 per annum (subject to review)

Further particulars and application forms available from the Principal (Tel. 014444).

UNIVERSITY COLLEGE, LONDON
DEPARTMENT OF PHYSICS
AND ASTRONOMY

COMPUTING ASSISTANT/ JUNIOR PROGRAMMER

Required to work in astronomical research group. We require a little programming knowledge and a lot of enthusiasm. The work will involve assisting in the computer reduction of satellite data from balloons and satellites.

Applicants should have a minimum of two years' experience in programming on a large mainframe computer. Minimum qualifications: A level Mathematics and some programming. Four week annual paid holiday plus statutory and customary holiday pay.

Salary: £3,818-£4,181 including London Allowance according to experience and qualifications.

Further particulars and application forms from the Personnel Officer (Technical Staff C/23), University College, London, Gower Street, London, WC1E 6BT.

BOX Nos.

Box number replies should be addressed to:

Box No.

c/o Computer
Weekly
Dorset House
Stamford Street
London SE1 9LU

COMPUTER SERVICES MANAGER

Applications are invited for this new appointment with one of the highest regional building societies. The Society, located in the West Country, has assets of £145 million and 27 Branch Offices handling over 120,000 accounts.

The appointee must be a DP professional with a proven record in leadership, planning, development and maintenance of batch and on-line systems. This installation comprises an ICL 290 mainframe with DDI terminals and a 7502 terminal system. Experience in a financial services sector using COBOL and TIS software will be of considerable advantage.

In return the Society offers a remuneration package which includes a salary commensurate with experience and qualifications, company mortgage facilities, BUPA membership and a contributory pension scheme.

If you consider you fulfil the requirements, please write in strict confidence for an application form, stating brief details of qualifications, career to date and present salary to:

Director and General Manager, Bridgwater Building Society, Bridgwater House, King Square, Bridgwater, Somerset, TA6 3BF.

Salary: £4470-£7148 p.a. + £72 per annum (subject to review)

Further particulars and application forms available from the Principal (Tel. 014444).

Applicants should hold appropriate qualifications and/or experience in computing. This is an opportunity for a computer professional to enter full-time teaching in an expanding area of work.

Salary: £4470-£7148 p.a. + £72 per annum (subject to review)

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Salary: £4470-£7148 p.a. + £72 per annum (subject to review)

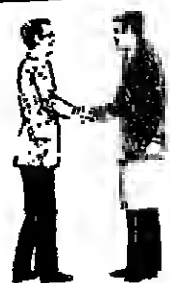
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MICROSYSTEMS'80

January 30 & 31, February 1, 1980 — Wembley Conference Centre, London

There are four great reasons why you should attend Britain's foremost microcomputer event. Can you afford to ignore them?

- Exhibition — more than 100 exhibition stands making it unquestionably Britain's largest specialist micro show.
- Professional Development Courses — three one-day courses to introduce you to the micro. Presented by Integrated Computer Systems, the leading training company.
- Buyers Forum — Sessions specially designed to help you in the selection of microprocessor products and equipment.
- Conference Sessions — State-of-the-Art sessions to bring you up-to-date with latest developments in the micro field.

WEDNESDAY, 30 JANUARY

Chairman: Dr. Frank Taylor, Systems Technology Consultants

DEVELOPMENTS IN MICROTECHNOLOGY

Microcomputing in the 80's.
Dr. Martin Healey, University College, Cardiff.
A review of the microelectronics field with particular reference to the direction the market will take in the 80's.

The developing chip.
Scott Dixon, Intel Corporation.
The trend towards incorporating more elements, including memory, on the chip continues.

Bit-slice technology — An approach to bespoke microprocessors.
Or. Alan Clements, Teesside Polytechnic.
The flexibility of bit-slice components enables machines with a variety of architecture to be constructed.

Memories for microsystems.
David Parrott, Texas Instruments.
The capacity of semiconductor memory is expanding to meet the future need and new applications are being opened up by bubble memory.

PUTTING MICRO TO WORK
Vibration Monitoring.
Ian Whitworth, Royal Military College of Science.
Microprocessors are being used to monitor vibration fatigue on large metal structures.

Micro in toys.
Richard Phillips, Texas Instruments.
Growing use of microprocessors in toys poses interesting problems in systems design and cost control.

The application of microprocessors in measurement systems.
Speaker from SIRA Institute to be confirmed.

Incorporating micros in OEM products.
S. Sambell, Hugh Pughman Associates.
The technical and practical considerations of incorporating micros in OEM products are examined.

Microcomputers in schools — are we doing it the wrong direction?
John Severn — Nottingham Technology Centre.
The speaker argues that we are in danger of regarding micro just as an educational aid rather than tools to be used.

Personal computing — a user's view.
Barry Biddis.
Getting into personal computers is not without its problems. The speaker looks at the current situation and asks whether things are improving.

Personal computing — a retailer's view.
Derek Moon, Curry's.
When a major High Street chain goes into the personal computer business it's news. A director of Curry's gives his view of the market.

THURSDAY, 31 JANUARY

Chairman: Dr. Martin Healey, University College, Cardiff.

SYSTEMS DESIGN AND SPECIFICATION

Specifying the system.
Dr. Keith Oaker, Sussex University.
A methodical approach to systems specification and design is the key to avoiding later problems.

Communicating with the outside world.
A.A. Molinari, Data Translation Inc.
Interfacing the microsystem to the outside world is not always as straightforward as it could be.

Five years' experience of a modular system.
Harrogate Landmark, Setco A.O.
Description of a microcomputer system based on over 80 Eurocard modules, allowing a choice of processor, store type and I/O circuits.

Standards for microsystems.
Speaker to be confirmed.

What technical standards have been agreed in the micro field? The speaker reviews what has been achieved.

SOFTWARE FOR MICROSYSTEMS.
Micro software.
John Smeaton, CAP Microsoft.

Microcomputer software is often limited in its scope. But it is improving. The current situation is examined.

Development aids.
K. Smith, Electrical Research Association.
The aids which are available for developing microsystems are reviewed and the way in which they are used is examined.

Development software for microprocessor systems.
Martin Whitbread, Leeds Polytechnic.

The main pre-requisites for development software outlined and the relative merits of PLM and PASCAL are assessed.

Databases on microsystems.
Tony Stock, O.M. England and Partners.
Problems of implementing database applications on microcomputer systems are identified and solutions are described.

FRIDAY, 1 FEBRUARY

Chairman: Julian Allinson, ACT Petrol.

PERSONAL COMPUTING

Trends in personal computing.
Robin Bradbeer, North London Polytechnic.
An examination of the directions which personal computing is taking, with reference to the U.S. scene.

How to choose a microcomputer system.
Martin Collins, Applied Systems Techniques.
Identifying the criteria for selecting a microcomputer is the first step to a successful choice.

Where next with the Pet?
Richard Paveon.
What is likely to be the next stage in the development of the Pet and what does the future hold for many thousands of UK users?

How to run a business on a microsystem.
Speaker to be confirmed.

The speaker's experience in applying a micro to his business is described. Linking your micro to the videodisc system.

Peter Sommer.
The ability to provide local intelligence, in the form of a micro, adds a new dimension to videodisc systems.

Microelectronics in schools — are we doing it the wrong direction?
John Severn — Nottingham Technology Centre.

The speaker argues that we are in danger of regarding micro just as an educational aid rather than tools to be used.

Personal computing — a user's view.
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Both the above posts will entail providing operational cover over an extended day ranging from 08.00 hours to 22.00 hours with hours outside this range being governed by operational requirements.

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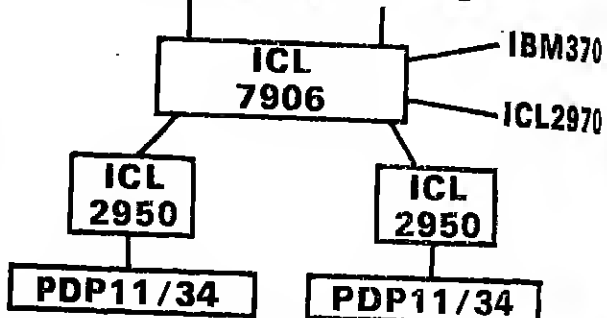
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A tremendous amount of time and money can be spent on typing, administration, postage, sales literature and so on, in order to give equal priority to waste paper, handbills and junk mail.

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A SURVEY of interactive turnkey draughting systems related to their use in mechanical engineering has been carried out by the Computer Aided Design Centre, Cambridge. Copies of the report, 'Which Turnkey Draughting System?' can be had from the centre for £125.

The survey was commissioned by the Department of Industry Mechanical Engineering and Machine Tool Requirements Board through its Computer Aided Engineering Panel. It was prompted by the growing interest in computer aided draughting and the fact that an increasing number of companies are seeking information and advice on the subject.

The draughting systems reviewed include the computer, graphics terminals, data storage, plotters and operating programs. They are sold and supported as a total package. The operating programs provide

comprehensive facilities for producing engineering drawings and, usually, machine tool numerical control programs.

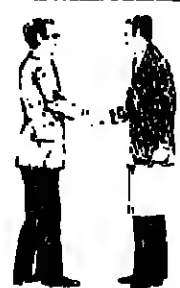
It is not a complete survey of all available draughting systems. The emphasis is related to the mechanical engineering sector.

Copies may be had from The Marketing Department, Computer Aided Design Centre, Muddingley Road, Cambridge CB3 0PL.

Puzzle Answer

3 1 9 5
10 20 16 36
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1 20
01
50 10
50 61
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2 55 30
0 50 30

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FRIDAY, 1 FEBRUARY

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 Dr. John Baker, North London Polytechnic.
 An examination of the current state of personal computing in the UK.

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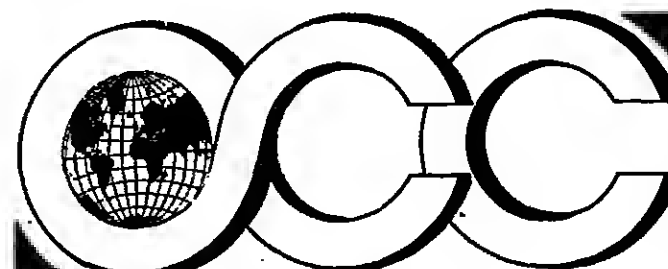
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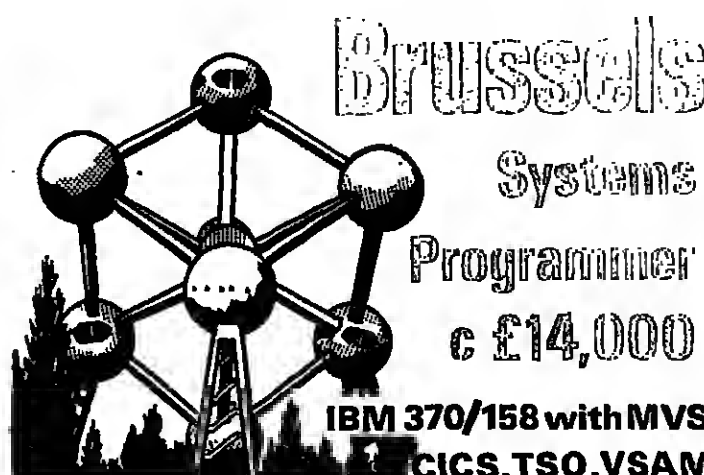
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